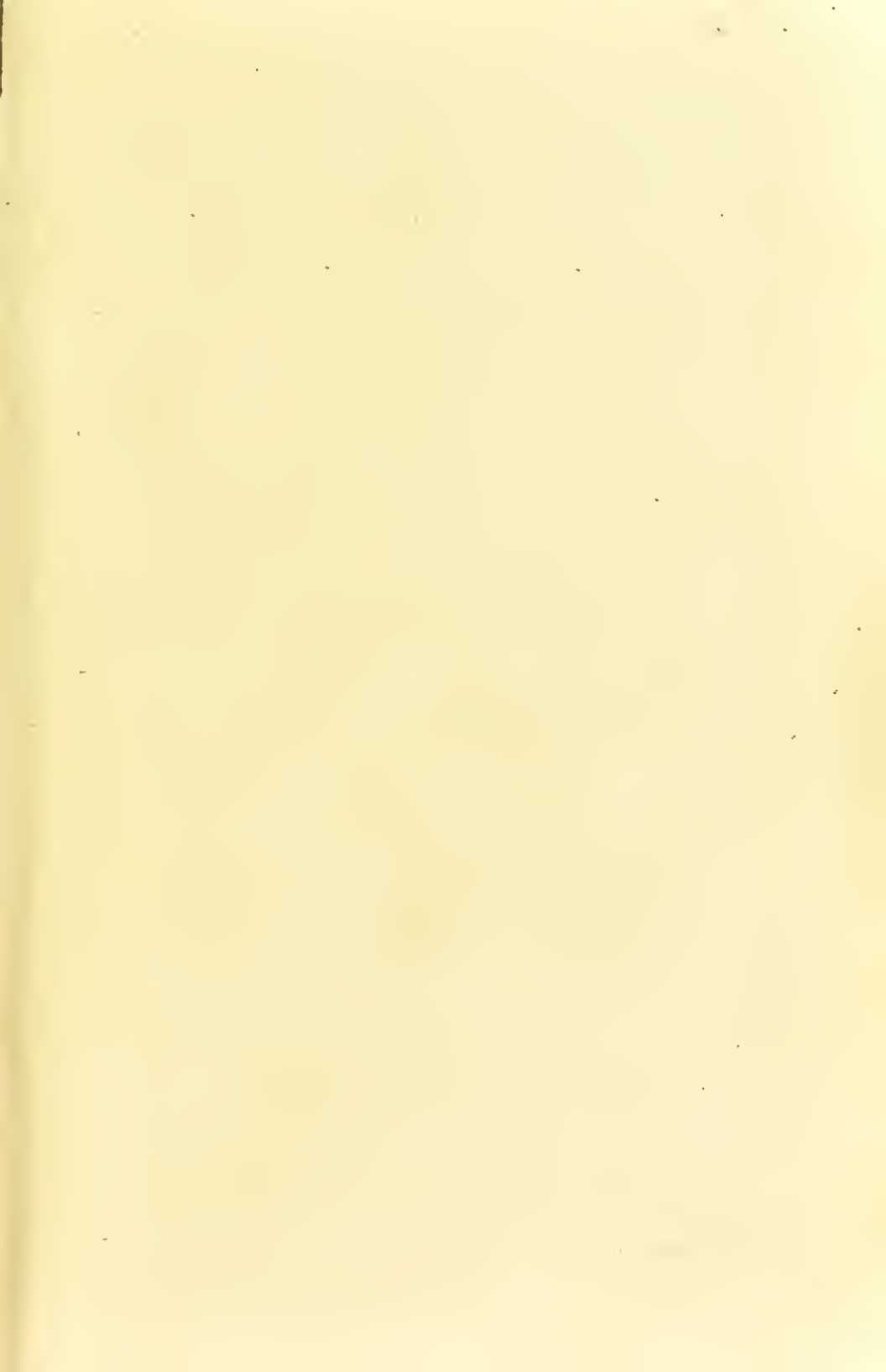


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of School-Age

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PLATE I. Group of Feebleminded Boys Working at Sandbridge.

Feeble-mindedness IN Children of School-Age

BY

C. PAGET LAPAGE, M.D., M.R.C.P.

*Lecturer in School Hygiene to the Manchester University, and
Physician to the Manchester Children's Hospital*

WITH AN APPENDIX ON
TREATMENT AND TRAINING

BY

MARY DENDY, M.A.

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MANCHESTER
AT THE UNIVERSITY PRESS

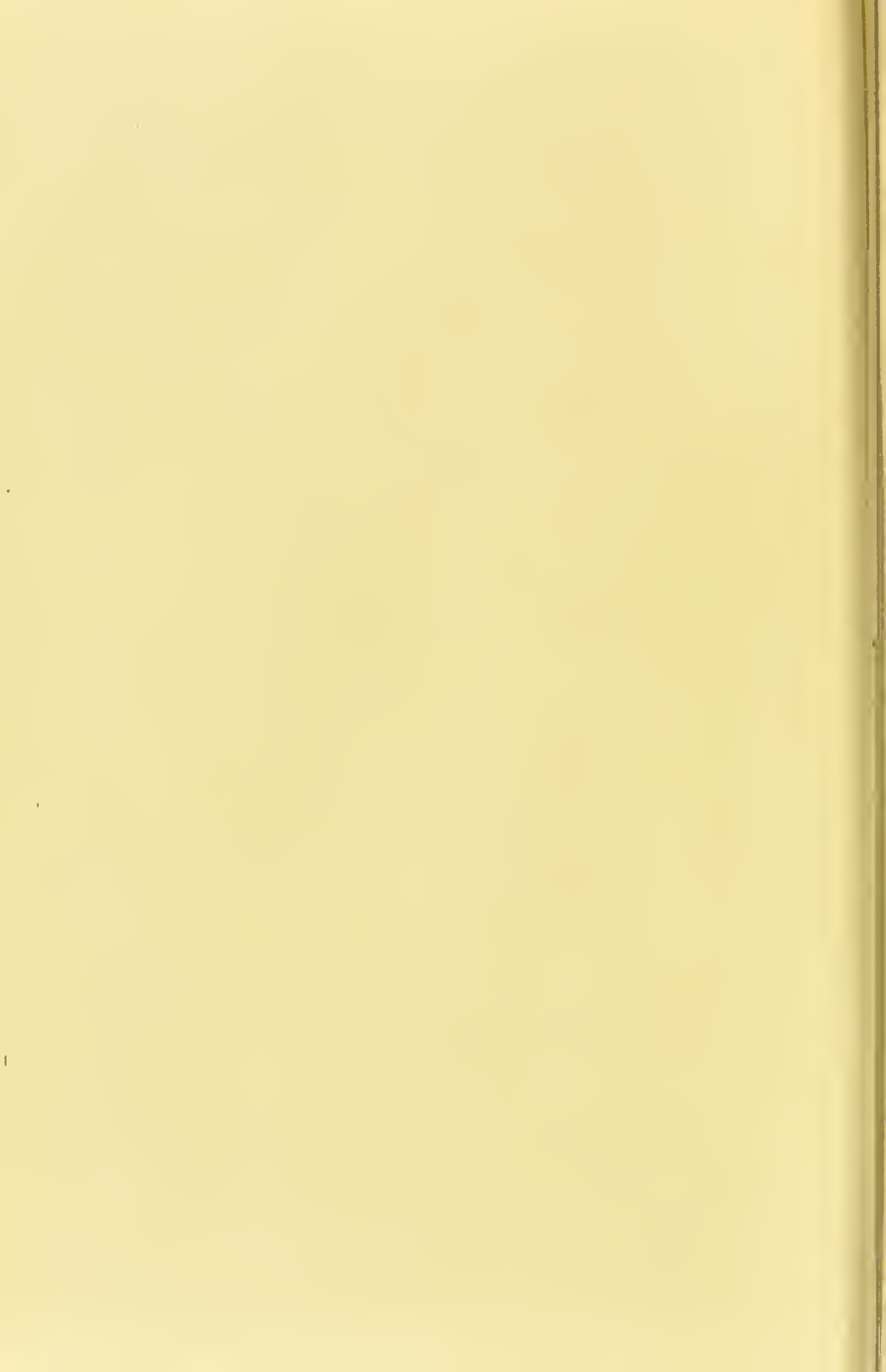
1911

UNIVERSITY OF MANCHESTER PUBLICATIONS
No. LVII.

TO THE MEMORY

OF

HENRY ASHBY



PREFACE.

UP to the present time the immense importance to our national welfare of effective methods in dealing with the Feeble-minded has not been generally realised. The report of the Royal Commission on the Care and Control of the Feeble-minded, published in 1908, has, however, served as a stimulus, so that, latterly, there has been a large amount of interest taken in the subject. This has rendered necessary the provision of a book suitable for school medical officers and also for teachers or social workers who have to deal with feeble-minded children.

The further objects of this book are (1) To emphasise the importance of the subject of mental deficiency and of the prominent place that efficient care of feeble-minded persons should take in the measures for the welfare of the community.

(2) To point out that feeble-mindedness is an inherited taint handed on from generation to generation, and that every feeble-minded person, who is a free and unrestrained agent, may, by becoming a parent, transmit that taint and so affect tens or hundreds in future generations.

(3) To demonstrate that the only way to deal effectively with the problem is to provide suitable supervision and care, which will last during the whole lifetime of the feeble-minded individual, and to show how such care may best be administered.

I wish to express my great indebtedness to Miss Dendy for her help and advice, and for the material which she has placed at my disposal. Her appendix on the Treatment and Training of Feeble-minded Children adds immensely to the practical value of the book.

I also wish to thank Professor Lorrain Smith for his help, and Dr. J. McIlraith (Medical Officer to the Sandlebridge Colony), Mr. Wyatt (Director of Elementary Education in Manchester), and Miss Dickens (Superintendent of the Manchester Special Schools) for so kindly placing material at my disposal. Most of the photographs were taken by Mr. Quinn. Mr. G. Lapage has also given me much assistance with the proofs.

C. P. L.

MANCHESTER,

November, 1910.

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Feeble-mindedness in Children
of School-Age

CHAPTER I.

INTRODUCTORY AND STATISTICAL.

HISTORY.

In 1904 it was thought necessary to appoint a Royal Commission on the Care and Control of the Feeble-minded. This fact may be regarded as the culmination of the efforts that had been going on in various quarters to promote the welfare of these unfortunate individuals. The pioneer work of Seguin, Itard, Howe, Wilbur and others with regard to the treatment and care of "idiots" as distinguished from "lunatics" has been described in other text-books, and we shall deal here chiefly with the history of the movement in England.

In the past the words "lunatic" and "idiot" have stood for two divisions of mentally deficient persons, the one implying "disorder of the mind in a person who has been in possession of his faculties," and the other "a state of mental incapacity, which has been present from birth or from an early age." The Lunacy Acts still include under their jurisdiction both lunatics and idiots, but the Idiots Act of 1886 deals with idiots apart from lunatics, and by the use of the word imbeciles, as referring to mental defect of a lesser degree than idiocy, recognises a sub-class of the

mentally defective. Later a further sub-class of still lesser degree, the feeble-minded, was recognised.

Most people are familiar with the type known as the "village idiot" and anyone who has to deal with such persons will know how helpless they are, how often they form the butt of gibes and jests, how they can be goaded to fits of passionate and uncontrollable rage during which they may commit acts of violence, and finally how subservient they are to the will and suggestion of others. Such persons are obviously in need of care and help; but until quite recently, in spite of the fact that much attention has been devoted to lunatics, of the idiots, only those with the lowest grade of intellect have been generally recognised as being in want of care. The existence of a very large number of persons who, though certainly of too low a mental level to look after themselves without assistance, are still of a higher level than idiots, has only been partially recognised, and though various more or less isolated attempts have been made to care for special classes of the weak-minded no comprehensive scheme has been adopted. The great majority of such persons have, up to the present time, been dealt with by various authorities such as the poor-law, the prisons, the inebriate homes, and the education authorities, according as to whether they are destitute, habitual criminals, drunkards or too deficient to benefit from instruc-

tion in the ordinary schools, as the case may be. Obviously it is wrong to make it impossible for them to come under care until they have committed an offence of some sort rather than to take them under care and prevent such offences.

In the attempts that have been made to deal with this class of mental deficiency we can trace several distinct movements. First, there was the establishment of the institutions known as the idiot asylums, which were founded at a time when idiocy was thought to be more or less curable, and the importance of permanent care had not been realised.

To quote the Commissioners :—

In general we may say that the object of the asylums is primarily educational, and that, originally at least, they were the outcome of a belief that in many cases special education would prepare “for the duties and enjoyments of life” the children or young persons, who gained admission to them.

Since the regulations included the discharge of pupils after a period varying from four to seven years, it is evident that permanent care formed no part of the original idea of their founders.

The first idiot asylum, Earlswood, was founded in 1847, but a small school had been established at Bath in 1846 and this became the Magdalen Hospital School. Other idiot asylums were established later, the Eastern Counties at Colchester in 1859, the Western Counties at Star-

cross in 1864, the Royal Albert at Lancaster in 1864, and the Midland Counties at Knowle in 1868. In all, these institutions provide accommodation for about 1,900 cases. But it should be pointed out that until a few years ago when they changed their names to "Training Schools for the Feeble-minded," these asylums were largely devoted to the care of the lower grade cases.

Secondly, taking the Poor Law Authorities, the Commissioners show that, though they have had permissive powers of making provision for the mentally defective class, the Guardians have not evolved any suitable scheme of dealing with such persons on the ground of their mental condition, but have treated them rather on the ground of their pauperism and need of relief, the mentally defective being kindly looked after but maintained rather than treated, and no attempt being made to separate the various grades. The evidence on this point is, as the Commissioners say, "quite conclusive":—

It comes almost entirely from persons who as Inspectors . . . or as Guardians are thoroughly familiar with the facts, and it relates practically to the whole country. There are special arrangements here and there . . . but it is admitted that, as a whole, the accommodation now provided for these persons is insufficient, unsuitable and unsatisfactory. It is not asserted that they are treated with unkindness . . . nor are the Poor Law Guardians throughout the country to blame. The system of

indoor relief is merely a housing system and . . . there has sprung up a demand for a more discriminating and individual treatment of mentally defective persons. . . .

The practice of giving outdoor relief or of boarding-out such cases has also had very bad results in England and is entirely undesirable for many reasons.

The Guardians have power to make use of other institutions and pay for the maintenance of the mentally defective there, and latterly there has been a marked tendency for the Guardians in various parts of the country to make use of available accommodation, but such accommodation is wholly insufficient. In London there is much better provision since there is the Industrial Colony at Darenth for the accommodation and training of improvable cases of all ages; also the Birmingham and King's Norton Unions have an institution at Monyhull for epileptic and feeble-minded persons. Their third Annual Report shows that the inmates lead useful and contented lives and are much better in health. Up to the present time children have not been received because it was thought that the Education Committee would provide for such cases, but it has been found necessary to make provision for admitting children. The average inclusive cost per week per head is 12s. 2 $\frac{3}{4}$ d.

Thirdly, taking the Education Authorities, the Education Act of 1870 gave the school boards

the duty of dealing with all educable children, and the establishment of schools for the *physically* defective soon followed (1872). The Royal Commission on the Blind, Deaf and Dumb (1889) recommended that every parent should cause his or her child "to receive instruction suitable to it," and that "with regard to feeble-minded children, they should be separated from ordinary public scholars in public elementary schools in order that they may receive special instruction and that the attention of school authorities be particularly directed towards that object." The latter recommendation arose from the evidence of several witnesses, especially Drs. Shuttleworth and Warner, with regard to those children defective in sight, hearing and speech because they were mentally deficient. London and seven provincial towns¹ established such schools, but the cost was a very heavy charge on local expenditure, when unsupported by a Government grant, and representations were made for special legislation in favour of feeble-minded children. General F. J. Moberly, who was then Chairman of the Sub-Committee of the London County Council Schools for the physically defective, gave evidence before this Commission and later became the Chairman of the Sub-Committee

1. Towns that first established special schools for feeble-minded children are Birmingham, Bradford, Bristol, Leicester, Liverpool, London, Manchester, Oldham and Salford, Leicester being the first of all.

in charge of the Special Schools for the Mentally Defective.

In 1876-77 a Special Committee of the Charity Organisation Society of London reported on the education and care of idiots, imbeciles and harmless lunatics estimating their number at 49,041, and recommending the establishment of schools and asylums in every large centre or group of counties.

Again in 1890 the same society appointed a special committee to consider and report on "the public and charitable provision made for the care and training of the feeble-minded, epileptic, deformed and crippled." This Committee issued in 1891 an interim, and in 1892 a final report, which embodied the results of an examination of a very large number of school children by Dr. Francis Warner and others, who found that approximately 1 per cent. of the children examined required special care and training.

In 1893 the Elementary Education (Blind and Deaf Children) Act was passed, and by it the teaching of blind and deaf children became compulsory. In 1895 a Committee under the auspices of the British Medical Association, the Charity Organisation Society of London, the British Association for the Advancement of Science, the International Congress of Hygiene and Demography, and other public bodies issued "A Report on the Scientific Study of the Mental and Physical Conditions of Childhood

with particular reference to Defective Children" from the Parke's Museum, Margaret Street, W.¹

The interest in defective children created by these various reports was great and led up to the appointment of a Departmental Committee on Defective and Epileptic Children in 1896. The Committee consisted of the Rev. F. W. Sharpe, C.B., then Her Majesty's Chief Inspector of Schools; Messrs. Pooley and Newton of the Education Department; Mrs. Burgwin and Miss Douglas Townsend; and of Professor Wm. Smith and Dr. Shuttleworth; Mr. H. W. Orange acting as Secretary. Their report was issued in 1898, and one of the main conclusions they formed was "that children exist, who, on the one hand, are too feeble-minded to be properly taught in ordinary elementary schools by ordinary methods, and, on the other hand, are not so feeble-minded as to be imbecile or idiotic. These feeble-minded children exist as a distinct class from imbeciles, they are not certified as imbeciles, not provided for as imbeciles, they differ both from ordinary children and from imbeciles in the treatment they require during their school-life." The Committee also found that approximately one per cent. of the children in the public elementary school classes appeared to be feeble-minded, and they recommended that

1. See Shuttleworth and Potts, "Mentally Deficient Children."

such children should attend school when possible rather than remain idle at home.

These suggestions were embodied in the Elementary Education (Defective and Epileptic Children) Act of 1899, defective children being there defined as "children, who, not being imbecile and not merely dull and backward, are by reason of mental and physical defect incapable of receiving proper benefit from the instruction in the ordinary public elementary schools, but are not incapable, by reason of such defect, of receiving benefit from instruction in such special classes or schools as are in this Act mentioned," and the period of compulsory education for these children was extended to 16 years instead of 14, as in ordinary children.

By this Act the authorities were empowered but not compelled (1) to establish special classes for defective children in some of their schools; (2) to board them out in houses near to special classes or schools; (3) to establish either day or boarding special schools for them. For epileptic children boarding schools only were allowed.

For some 30 years, however, much attention had been paid to means for helping feeble-minded women, especially those who had been led into disgrace by reason of their mental defect, and Lady Frederick Cavendish established the first home for this purpose. Her efforts were followed by Miss Stacey in Birmingham, Miss Grayson in Liverpool and Miss Scott at Hitchen. Largely

owing to the establishment of Special Day Schools which revealed the very large numbers of the weakminded children for whom no special provision was made, the subject of feeble-mindedness assumed increasingly more importance, and in 1896 was founded the National Association for Promoting the Welfare of the Feeble-minded.

At this time a new development in the care of the feeble-minded began with the foundation in 1898 of the Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded, since hitherto no large society or institution had grasped and emphasised the essential point in dealing with the problem, that of permanent care.

The foundation of this last society followed directly as a result of the efforts of Miss Mary Dendy and the late Dr. Henry Ashby. Miss Dendy's attention had been attracted to the large numbers of obviously weak-minded children in the elementary schools under the Manchester School Board, and Dr. Ashby examined and reported on 500 mentally defective children selected by her from 39,600 scholars.

This examination, entailing as it did a questioning of the parents, only served to emphasise the point that, valuable as special day schools may be, the work done in them must be largely wasted and nullified if the children are discharged at the age of sixteen, the most critical period of their lives, to become in many instances

the parents of children similar to themselves. Miss Dendy's efforts led to the foundation of the above society, to which she is Honorary Secretary and which has now attained important dimensions. Mr. C. H. Wyatt, late Clerk to the School-Board and now Director of Elementary Education in Manchester, has also done a great deal to aid the work of the Society, which is based on the fact that only lifelong care of the feeble-minded is satisfactory. The success of the colony at Sandlebridge demonstrates the feasibility and value of this method of caring for the persons of weak mind.

In April 1903, a petition signed by some 140 influential persons, especially interested in the subject, was sent to the Home Secretary pleading for the appointment of a Royal Commission "to consider and report upon the existing provision for Idiots, Imbeciles, and the Defective or Feeble-minded, and to make recommendations." This led up to the appointment in 1904 of the Royal Commission on the Care and Control of the Feeble-minded.

The Marquis of Bath was first appointed Chairman of the Commission but he resigned and the Earl of Radnor was appointed in his place. The other members were (2) W. P. Byrne, Esq., Principal Clerk to the Home Office. (3) C. E. H. Chadwick-Healey, Esq., K.C. (4) C. E. H. Hobhouse, Esq., M.P. (5) F. Needham, Esq., M.D., Commissioner in Lunacy.

(6) H. B. Donkin, Esq., M.D. (7) J. C. Dunlop, Esq., M.D. (8) H. D. Greene, Esq., M.D. (9) The Rev. H. N. Burden, Manager of Bentry and other Inebriate Reformatories. (10) W. H. Dickenson, Esq., M.P., Chairman of the National Association for promoting the welfare of the Feeble-minded. (11) C. S. Loch, Esq., Secretary to the Charity Organization Society. (12) Mrs. Hume Pinsent, Chairman of the Special Schools Sub-Committee of the Birmingham Education Committee.

Their report consisted of eight volumes; volumes one to four being minutes of evidence, volume five appendix papers, volume six the reports of the medical investigators, volume seven the report on the visit of certain of the Commissioners to America, and volume eight the Report Volume. The report was issued in August 1908, and served to correlate and focus the knowledge on the subject, to bring forward much fresh evidence and to bring out prominently the urgent need of a comprehensive scheme for dealing with the feeble-minded.

The Commissioners were at first directed to consider the methods of dealing with idiots, epileptics, imbecile, feeble-minded or defective persons not certified under the Lunacy Laws, but later the scope of the enquiry widened and they were also directed to enquire into the Lunacy Laws with a view to the suggestion of some scheme that would provide care for all

persons of deficient intellect whether they be lunatics, demented, idiots, imbeciles, epileptics or feeble-minded. The Commissioners examined 248 witnesses, obtained information from foreign countries and visited American institutions. At the outset it was found that there were no available statistics; medical investigators were, therefore, appointed in various districts, their duties being to examine the following groups of persons:—

- (1) Children in Public Elementary Schools.
- (2) Children and Adults in Poor Law Institutions.
- (3) Children and Adults in receipt of Outdoor Relief.
- (4) Persons known to Sanitary Authorities.
- (5) Persons relieved by Medical Charities.
- (6) Persons known to General Practitioners.
- (7) Children and Adults in various Charitable Institutions and Common Lodging Houses, Training Homes, and Reformatories and Industrial Schools.
- (8) Persons to be heard of from other sources.
- (9) Known to the Police.
- (10) Idiots of the District in Idiot Asylums.
- (11) Inmates of Prisons.
- (12) Inmates of Inebriate Homes.

CLASSIFICATION AND DEFINITIONS.

Strictly speaking the term Mental Deficiency

includes all persons of unsound mind, and such persons can be divided into two classes:—

(1) Lunatics, demented or insane persons, who from disorder of the mind or from a decay of their mental faculties, have lost the power of managing themselves or their affairs.

(2) Amented, or persons who, because their brain is incapable of normal development, have never had and never will have the power of managing themselves or their affairs.

There has been and still is a tendency to limit the term Mental Defect to Amented as distinguished from Demented. In this book we shall use the term mentally defective in reference to class (2), the amented, the terms idiot, imbecile and feeble-minded and moral imbecile being used to designate various grades. We shall dismiss class (1), or lunatics, with the two remarks that the Commissioners recommend that the words "lunatic" and "asylums" should be superseded and those of "persons of unsound mind" and "hospital" substituted, and that it is entirely undesirable that lunatics should be treated in the same institutions as the mentally defective.

Of the three grades of amented or mentally defective persons, the feeble-minded are intellectually the highest, the idiots the lowest, and the imbeciles intermediate.

DEFINITIONS.

The definitions of the three grades suggested

by the Royal College of Physicians of London and adopted by the Royal Commission are :—

(1) A *feeble-minded* person is one who is capable of earning a living under favourable circumstances, but is incapable, from mental defect existing from birth, or from an early age, (a) of competing on equal terms with his normal fellows; or (b) of managing himself or his affairs with ordinary prudence.

(2) "The *imbecile* is one who, by reason of mental defect existing from birth or from an early age, is incapable of earning his own living, but is capable of guarding himself against common physical dangers."

(3) "An *idiot* is one so deeply defective in mind from birth or from an early age, that he is unable to guard himself against common physical dangers."

And the "Moral Imbecile" is a person who, by reason of an innate defect, displays at an early age vicious or criminal propensities which are of an incorrigible or unusual nature, and are generally associated with some slight limitation of intellect.

In all definitions of these conditions the life-long and incurable character of the mental affliction should be emphasised, in order to distinguish it from (1) temporary mental affections, and (2) from backwardness or retarded mental development, which is due to adverse factors in infancy and childhood. Temporary

insanity may be cured and a backward child may be brought up to the normal level by suitable treatment, but a mentally deficient child, though amenable to treatment and training to some extent, can never be rendered normal.

CAUSATION.

When dealing with the causation of mental defect the Commissioners found that twenty-five out of thirty-five witnesses attached supreme importance to the fact that, in a very large proportion of the cases of mental defect, there is a history of mental defect in the parents or near ancestors. The twenty-five witnesses, who held this opinion, had all had a very large experience and had devoted special attention to the subject. Sir Clifford Allbutt said :—

I regard feeble-mindedness (if not accidental) as always hereditary, or in other words it is a ratio of variation. I have never met with a case of manufactured feeble-mindedness apart from some accident at birth or afterwards. . . . I attach great weight to inheritance. . . . Feeble-minded persons are prolific; the thing can only be bred out.

Dr. Ashby, Medical Officer to the Special Schools at Manchester, said :—

In at least 75 per cent. of the children with amentia that I have examined there was a strong probability that the amentia was hereditary and primary (*i.e.*, spontaneous, not due to external influences). He further says that he has observed no special tendency in the children of alcoholics or of

women who suffer privation during pregnancy or in those children who live in unfavourable conditions subsequent to birth, to develop amentia. The term "Amentia" is here used to cover all grades of mental defect in early life.

Dr. Bevan Lewis said :—

There is not the least doubt of it in my mind. I look upon feeble-mindedness as a germinal variation just as all "variations" are.

Dr. Tredgold found evidence of a neuropathic inheritance in 80 per cent. of his cases.

Mr. Frederic Williams, Director of Education, Bolton Education Committee, gave evidence to the effect that in almost every case where parents of mentally defective children appeared before the Committee or before magistrates, it was found that the parents themselves were similarly affected.

In support of the importance of heredity in the causation of feeble-mindedness are the facts that a large majority of "experienced witnesses" hold this view as do "numerous observant individuals other than medical who visit the homes of the feeble-minded," and "the almost overwhelming probability from the biological standpoint of this view being true." Professor Sir E. Ray Lankester holds :—

that congenital feeble-mindedness is spontaneous originally and truly hereditary subsequently and is not brought about by starvation and other such

conditions: it is more probably due to easy conditions of life and the absence of the selection that obtains amongst more primitive men.

Dr. Archdall Reid is of the opinion that the great majority of the cases of feeble-mindedness are innate and tend to be inherited.

With regard to the fertility of mentally deficient persons the Commissioners quote the evidence of "their medical investigators and of Miss Dendy, a very experienced witness," to show that in spite of the fact that there is a large mortality in the children born to mentally deficient persons, they tend to have large families.

On the other hand it is only fair to quote Dr. Mercier's evidence, which was:—

clear and consecutive and amounts to the conclusion that, not only is the frequent transmission of feeble-mindedness by inheritance not proved, but, also, that the organic defect of brain which underlies feeble-mindedness may be often the result of external influences which during childhood affect the growth of the brain injuriously.

In conclusion, the Commissioners sum up:—

1. That both on the grounds of fact and of theory there is the highest degree of probability that "feeble-mindedness" is usually spontaneous in origin—that is, not due to influences acting on the parent—and tends strongly to be inherited.

2. That, especially in view of the evidence concerning fertility, the prevention of mentally defective persons from becoming parents would tend largely

to diminish the number of such persons in the population.

3. That the evidence for the conclusions strongly supports measures, which on other grounds are of pressing importance, for placing mentally defective persons, men and women, who are living at large and uncontrolled, in institutions where they will be employed and detained; and in this, and in other ways, kept under effectual supervision so long as may be necessary.

They add that, in their opinion:—

the general feeling of the people would at present rightly condemn any legislation directed chiefly or exclusively to the prevention of hereditary transmission of mental defect by surgical or other artificial measures. The possibility of adopting such measures having been referred to by twenty-one of the witnesses but only recommended by three.

PROPORTION OF THE FEEBLEMINDED TO THE GENERAL POPULATION.

The statistics given on pages 192 and 193 of the Commissioners' report are very striking. Apart from lunatics (or, as the Commissioners recommend they should be called, "persons of unsound mind") at least one in 217 or 0·46 per cent. of the population is mentally defective, *i.e.*, is either idiot, imbecile, feeble-minded or a moral imbecile. When children on the school registers are considered, the proportion is still higher, partly because mentally deficient persons tend to die earlier in life and partly because propor-

tionately more children than adults come under supervision and observation on the ground of mental defect. Taking the average of the results obtained from the figures collected by the medical investigators the proportion was 1 to 127 or 0.79 per cent., being approximately 1.0 per cent. in urban districts and 0.5 in rural. In some towns the proportion was higher than 1 per cent., being in Birmingham 1.12 per cent., in Manchester 1.24 per cent. and in Lincoln 1.10 per cent. Thus in these districts there is at least one mentally deficient to about every eighty-five ordinary school children. Out of 436,833 children on the school registers in the areas investigated 3,437 were mentally defective, and of these 2,590 or 75 per cent. were in need of provision. This means that in England and Wales there are probably at present at least 47,515 mentally deficient scholars on the registers, and that 35,804 of these are in actual need of provision and care (the total number of children on the school registers being given as 6,044,394). It must be noted that these figures refer only to school registers and do not necessarily include all mentally deficient children.

NATALITY AND MORTALITY.

With regard to the natality and mortality of mentally defective persons the Commissioners deplore the lack of sifted and precise evidence but quote some valuable statistics of Dr. Tredgold's,

which show that the average number to each family is very large, being about seven or eight, and that, though there is a large mortality, there is a considerable survival. The Commissioners state that the evidence before them cannot be taken as a sufficient basis for generalisation, but, so far as they go, the figures and statements support the opinion that, during the years of procreation and child-bearing, there should be control and supervision in the case of mentally defective men and women.

From the evidence of the medical investigators it seems that a large number of feeble-minded men and women drift into the workhouse before they are thirty years of age and, with regard to the maternity cases amongst feeble-minded women, Dr. Melland of Manchester found that of nineteen feeble-minded women in the lying-in wards of the workhouse infirmaries, in all but two cases the children were illegitimate, and one of these two women had had an illegitimate child before she was married; all of the women were young. Dr. Tredgold found that of feeble-minded mothers, 19 were legally married and 42 had had illegitimate children.

The general conclusions and recommendations on page 201 include the following paragraphs:—

In dealing with the classes idiot, imbecile, feeble-minded and moral imbecile, we are dealing with conditions chiefly inherited and subject therefore, to amelioration only to the extent to which the mental

and physical force available in the individual approaches to the normal. But this conclusion does not preclude a considerable advance in knowledge and self-command among the higher grades of the defective—so far at least that they may be trained so as to contribute materially to their self-support.

The problem . . . affects very largely education, Poor Law and prison administration, and the treatment of it by one authority would greatly reduce the charges and simplify the obligations of other authorities dealing with these branches of public work.

MENTAL DEFECT AND CRIME.

After examining a large number of expert witnesses, including Dr. Scott, London House of Detention for Males, Miss Dendy, Mr. A. A. Allen, Chairman of the London Special Schools Committee, Dr. Ashby, Dr. Savage, Dr. Mott, Dr. Clouston, Mr. Legge, then Inspector of Reformatory and Industrial Schools, and Sir Edward Fry, the Commissioners sum up that, on general grounds, many competent observers are of the opinion that :—

if the constantly recurring fatuous and irresponsible crimes and offences of mentally defective persons are to be prevented, long and continuous detention is necessary. From the earliest age, when they appear before the magistrates as children on remand or as juvenile offenders until and throughout the adult period of their lives, the mentally defective, at first reprimanded and returned to their parents,

then convicted and subjected to a short sentence and returned to their parents, and then later continually sentenced and re-sentenced and returned to their parents and friends till for crimes of greater gravity they pass to the convict prisons, are treated, as this reiterated evidence shows, without hope and without purpose, and in such a way as to allow them to become habitual delinquents of the worst type and to propagate a progeny which may become criminal like themselves. This, as has been said, is an evil of the very greatest magnitude. The absolute and urgent necessity of coping with it is undeniable.

242 of 2,353 prisoners, or 10·28 per cent., were mentally defective, and this is probably an underestimate.

MENTAL DEFECT AND CRIMINAL RESPONSIBILITY.

After listening to the evidence of experts and quoting that of Mr. Troup, Permanent Under-Secretary to the Home Department, and of Mr. Shadwell, one of the Commissioners in Lunacy, the Commissioners conclude :—

We find therefore—and there is evidence with regard to it from all quarters—that there is also another larger¹ class of persons who can often be hardly distinguished from the “certifiably insane,” who are “morally incapable,” “socially dangerous,” and “obviously weakminded,” who are “not thought to be certifiable” and who “from weakness of mind are really not wholly responsible.”

One scheme submitted to the Commissioners

1. Larger than the lunatic class.

was the expansion of the industrial school system so as to meet the needs of the mentally defective, but that they are not in favour of such a scheme is shown by the following quotation :—

In the case, however, of children or young persons, who are mentally defective, reform, in the sense of influencing and educating them in such a way that they become normal members of society, is in most instances impossible. They can only develop within the limits of their defective or retarded brain power. Hence for them not a definite time-limited sentence, but a supervision that may be extended for a long time, sometimes for life, may in many instances be required. . . . Yet as a precedent the Reformatory and Industrial Schools are valuable. They recognise the right of the non-responsible offender to special disciplinary and educational treatment

It is evident, therefore, that mentally defective persons should be treated on the ground of their mental condition and not on the ground of their criminal offences.

MENTAL DEFECT AND DRINK.

62·7 per cent. of habitual inebriates were found to be mentally defective, and the conclusions reached are, that there should be an extension of the legal powers of detention and control of such cases, not as criminals and drunkards, but as persons of feeble mind. Dr. Branthwaite, Inspector under the Inebriates Act, stated that many chronic inebriates are none other than feeble-minded persons, drunkards simply because

they are feeble-minded. Dr. Mott pointed out that the weak-minded react more readily to alcohol than do normal persons. The superintendent of the Brentry Certified Reformatory (Dr. Fleck) stated that he could not conceive the possibility of 70 per cent. of inebriates ever acquiring sufficient self-control to be able to keep themselves from drunkenness and support themselves. Many other expert witnesses gave similar evidence, and it is plain that a very large proportion of the present-day chronic inebriates should be treated on the ground of their mental weakness and not as criminals. Regarding the more far-reaching effects of alcohol, the report runs as follows:—

We are not called on to decide between the various well-known opinions which are held regarding the causal relationship of alcohol and alcoholism and mental defect, still less between the conflicting views concerning the possibility of alcoholism in the parents having any direct action on the germ or organism of the offspring, and thus affecting the well-being of the race. . . . It is sufficient to insist upon the salient and incontrovertible facts that many chronic inebriates are mentally defective; that many mentally defective persons are liable to suffer speedily, seriously and permanently from the effects of alcohol; that in any case alcohol in the parent leads practically to many evils in the family by destroying the organisation of the home and by bringing about neglect, ill-treatment, starvation and disease among the children.

MENTAL DEFECT AND ILLEGITIMACY.

Witness after witness examined before the Royal Commission spoke of the urgent need of detention for feeble-minded girls.

Dr. Clouston, Physician Superintendent of the Roal Edinburgh Asylum, says :—

feeble-minded young women are subject to overwhelming temptations and pressure towards sexual immorality. Many of them have had illegitimate children and this often at very early ages. One had seven such children. I look on this source of immorality as an extremely grave one in our social life. When illegitimate children are borne by such young women the chances are enormously in favour of their turning out to be either imbeciles, or degenerates, or criminals.

Other witnesses,* who held responsible positions, gave similar evidence, showing how feeble-minded women give birth to child after child, all of them illegitimate, and yet there is considerable doubt whether any machinery exists to provide control for these women. The girl can be kept in the workhouse until she is sixteen, or if the guardians adopt her, till she is eighteen,

* Mr. Baldwin Fleming, one of the General Inspectors to the Local Government Board ; Miss Skinner, Superintendent Nurse of the York Union Infirmary ; Mrs. Ruspini, representing the Church Penitentiary Association ; Miss Helen Benington, Lady Superintendent of the York Rescue Homes.

but after that time she is free to take her discharge. The consequences of her doing so are that she will probably return to give birth to a child and then again take her discharge. Cases where feeble-minded women take their discharge and return again and again to give birth to illegitimate children are well-known to most boards of guardians, who are, nevertheless, powerless to prevent it.

These figures and facts all serve to show that the efficient care of our feeble-minded is one of national importance, and yet comparatively few people have much connected knowledge of the subject. This ignorance has led to gross errors in the past. Ireland quotes a case, related by Howe, in which for economical reasons an idiot male pauper from one town was allowed to marry an idiot female pauper from another and in consequence the authorities had ultimately to support the pair and the three idiot children born to them. Mistakes of this kind are not so likely to occur nowadays, but all persons of feeble mind do not come under the control of responsible authorities, and there will always be grave danger until they do.

PRESENT METHODS OF DEALING WITH MENTAL DEFECTIVES.

Notwithstanding the immense importance of permanent and specialised care for the feeble-

minded, there are at present few organizations devoted to this purpose.*

There are three chief agencies by which mentally defective persons can be supervised and cared for :—

- (a) Through the Lunacy Commissioners and Idiot Asylums.
- (b) Through the Poor Law Guardians and Local Government Board.
- (c) Through the Education Authorities.

Taking these in order :—

(a) *The Lunacy Commissioners.*

Under the Idiots Act “an idiot or imbecile from birth or from an early age may, if under age, be placed by his parents or guardians . . . in any hospital, institution or licensed house registered under this Act . . . upon certificate in writing of a duly qualified practitioner stating that he is capable of receiving benefit from admission.”

The accommodation afforded by the idiot asylums is wholly insufficient both as regards numbers and duration of residence, and there are

* All told, the aggregate special charitable and Poor-Law accommodation for imbeciles (as distinguished from lunatics) in England and Wales, other than in workhouses, does not amount to 10,000 beds; in addition nearly 1,000, classed as “feeble-minded,” are provided for in residential homes.—*British Medical Journal*, April 30th, 1910.

very few asylums reserved for the mentally deficient that are entirely supported from the rates. The Darenth, The Monyhull (Birmingham, Aston and King's Norton), and Winwick Hall, Lancashire are three of these. The returns from the idiot asylums show that there is probably provision for about 7 per cent. of the 46,000 idiots and imbeciles (exclusive of feeble-minded) in the United Kingdom. This means that there are large waiting lists and that cases have to be discharged after their term of four to seven years to make room for others.

Speaking of the results of training, Dr. Caldecott, Medical Superintendent of Earlswood, says: "Roughly speaking two-fifths of our patients are idiots, two-fifths low grade imbeciles and one-fifth high grade and trainable imbeciles. Of 341 cases discharged during the last fifteen years 3'25 per cent. were earning wages, 3'81 were at home and very useful, 7'5 per cent. at home and useful, and the rest, 85'5 per cent., were no good, and should have been taken care of for life."

At Lancaster 37 per cent. were high grade and 9 per cent. of those discharged were earning wages, 33'5 per cent. at home and 40'3 per cent. in workhouses or asylums: the conclusion reached being that none of the cases, be they competent workers or not, ought to go out into the world. As Dr. Douglas, the Medical Superintendent says: "If they have learnt a trade, they

still turn to common forms of labour, and if their friends let them idly loaf about no wonder they get into mischief."

On the other hand the privately-managed homes have dealt for the most part with the higher grade and more improvable cases, and it is found that, when only dealing with such cases, the cost is much reduced. Even when dealing with the highest grade cases it must not be thought that they can be fitted to look after themselves, and permanent care should be the primary object of all institutions. The evidence given shows the advantages to mental defectives of a well-ordered, disciplined life.

The Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded with their institution at Sandlebridge have provided the best illustration of this class of home and the results with the children are excellent. But the want of legal powers of detention makes great difficulties with the parents, who are actuated by selfish motives and cannot be made to see the need of permanent care, while a very large proportion of the parents of feeble-minded children are not of a high mental level. As Miss Dendy said in her evidence before the Royal Commission, "the results of putting these children into boarding schools are simply wonderful. Neither boys nor girls show the least restlessness. They (the big ones) are as easily guided as little children."

(b) *The Poor Law Guardians.*

These authorities have large permissive powers to deal with the mentally defective, but it is doubtful whether they can cope with the problem; certainly, up to the present, they have not done so. As the Royal Commissioners state, the Boards of Guardians, though they have large powers, have done little to organize any special method of dealing with mentally defective children. The Commissioners find that, in the workhouses, feeble-minded children are kindly looked after but are maintained rather than treated, so that colonies would be far more economical and also better for the children.

Thus permissive legislation has failed and some public organisation is needed.

The Guardians can deal with "idiotic" paupers, adopt them for life and send them to workhouses or asylums with the consent of the Local Government Board, or they may give them indoor or outdoor relief. It can be pointed out with advantage here that outdoor relief to a mentally defective person is entirely opposed to all principles governing the efficient treatment of the feeble-minded.

In practice the amount of care that can at present be obtained by parents with a feeble-minded child on application to the Poor Law depends greatly on the goodwill of the Guardians to whom they apply. If the child is certified by

a medical man as being dangerous or as being unmanageable at home the parents can demand that the child be put under care; but if the child is, as most feeble-minded children are, not actively dangerous they can apply to the relieving officer to have the child taken into the work-house. The child can be admitted if certified by the medical man, but it is extremely difficult in some parishes for persons, able to support a family, to obtain admission for a feeble-minded child who is not actively dangerous, unmanageable and violent. And we have seen that the majority of the feeble-minded are dangerous not because they are violent, but because they are weak-willed, open to suggestion and mentally unable to appreciate what is right or wrong.

Some Boards of Guardians do make attempts to deal with the problem and have done more since the report of the Royal Commission: still the above statements hold for many parishes at present. Even when the Guardians try to deal with feeble-minded persons, the accommodation for such cases is so limited that they have great difficulty in providing efficient care. Once a child is adopted the Guardians are empowered to maintain and care for it indefinitely, but it is doubtful if they can detain such cases after the age of eighteen because, legally, it is quite open to a feeble-minded person to take out his or her own discharge after that age.

(c) *The Education Authorities.*

The Education authorities by the Act of 1899 are empowered but not required, to make provision for mentally defective children. If they have adopted this Act, they have the power of making provision for and controlling the education of feeble-minded children up to the age of sixteen. If a special school has been established in the district, in which the child is, they can enforce attendance at that school. If there are residential institutions they can, *with the parents' consent*, send feeble-minded children to them up to the age of sixteen, but it is doubtful whether they can legally enforce detention at any age. After the age of sixteen all legal control ceases.

In 1907 the special schools provided accommodation for 9,082, of whom 4,946 were in London, outside which the special schools are few in number, being about 60 or 70 in all. Therefore it is evident that in spite of the efforts made in some large towns, the provision of facilities for the suitable education of feeble-minded children is very small. This means either that the child drags along hopelessly in one of the ordinary schools, wasting the time and energy of the teacher and the rest of the class, or that he is given up as imbecile and stays at home, sinking deeper and deeper into mental stagnation and needing continual watching and care by his mother.

On the other hand it is very doubtful whether,

under present conditions, special schools are not to some extent harmful, without organised life-long control after the child has left school. Nothing can be more foolish or shortsighted than to train and give a simple education to and then to let loose yearly over a thousand children, who, in spite of the work done by the after-care associations, are many of them certain to sink to low levels and to swell the ranks of those needing relief. As Dr. Kerr, Medical Officer to the London School Board, says :—

A considerable proportion show little moral restraint, some are almost without speech, some seem incapable of work, others work without progress or intelligence; very frequently too they are addicted to staying out or even wandering at night, and many of this last class come into the hands of the police. Some have bad habits and immoral tendencies are common. Many are capable of control when in the Special School, but speedily become irregular and uncontrollable on leaving it. . . . About one-third will be capable of materially contributing to their own livelihood after leaving, one-third will partially contribute but require an After-Care Association of some kind to look after them, whilst the remainder should not be allowed to mix with the rest of the community, but should receive some kind of custodial treatment.

After quoting various sets of figures concerning the children who have left the special schools the Commissioners sum up :—

No figures could better show the necessity of supplementing the special classes by other means,

only 17 per cent. of one set of children getting good work and the larger number of children returned as "lost" or "at home" (not doing work) show the need of some after-care and supervision. It appears that even allowing for the exclusion of cases at the outset as unsuitable (of too low a grade) for the special classes, 47 per cent. will never earn their own living, 28 per cent. would probably earn under control and 22 per cent. would be possible wage earners.

and conclude :—

We may conclude then that the results of this survey confirm the general opinion that the special school system is rather an incident in the general scheme than of main importance in itself and is . . . not the central point of any such scheme.

Subsequent experience makes it appear that this evidence is to some extent misleading, and gives a too hopeful view of the wage-earning capacity of the feeble-minded. The After-care Committee of Birmingham, established in 1901, through the agency of Mrs. Hume Pinsent, who has done so much for the furtherance of methods of dealing with the feeble-minded, report in 1910, after nine years' investigation, that of 650 cases, 18 per cent. are doing remunerative work, and at least 65 per cent. are not. After four years of trial, the Employment Bureau has been given up because of "the impossibility of obtaining and retaining ordinary situations for any but an extremely limited number of our high-grade

cases." Situations may be found but the feeble-minded do not retain them, especially when "they get older and the difference between them and their fellows is accentuated."

Though this absence of organisation for permanent care takes away nine-tenths of their value, special schools are of use, even now, in that they keep a register and records of the feeble-minded children in the district, in that they bring out and emphasise the need for special care, and in that they are most useful links with colonies and institutions, where such exist. When once permanent care can be enforced, then the special schools will become a very valuable part of the whole scheme.

The visits of certain of the Commissioners to other countries and especially that to America, the result of which is embodied in a special volume of their report, only served to emphasise the value of permanent care and of the farm colony system, with a separation of the various grades of defect.

In America the institutions are of a high grade of efficiency and are worked very economically. The earlier ideas were that the feeble-minded could be brought to earn their own living, but this had to be given up and permanent care was found to be much more desirable from all points of view. The Commissioners were impressed by the large size of the institutions, a characteristic rather advantageous than otherwise since the

cases could be divided into three departments, and could be transferred from one department to another if necessary. The three departments were (1) the Custodial for the lowest grades (idiots), (2) the school for the higher grade children, and (3) the Industrial for higher grade adults.

Perhaps a better division is to separate them first into classes according to the sex and age, and then to divide them according to the grade of intellect and to their power of working, without paying too much attention to their power of doing school-work, which is almost the least important part of their training. The Waverley establishment is well described by Miss Dendy in her article "Workers or Wastrels" in the *Charity Organisation Review* of November 1909. At this institution there are about 1,400 people of both sexes and all ages from six to sixty. The colony is state-supported. The men and boys who are not employed in useful work are practically physically incapacitated, and the work consists of road-making, coal-loading, gardening, farm and house-work and also reclaiming swampy ground. Beginning with very simple tasks to train the senses, mental defectives are usually able to turn to useful work even though they cannot make the least progress in school. A farm colony for the older men is attached to Waverley and here 250 men live and work contentedly, while the two institutions help to

support one another by exchanging farm and industrial produce.

The results of the Newark State Custodial Home for Feeble-minded Women with its object "to detain women of a child-bearing age in order to prevent the propagation of persons of feeble mind with its attendant evils to the community" were particularly good. "About half the cases admitted to this institution were decidedly imbecile or idiotic, the other half being high-grade imbeciles, or young women, whose mental defect was so slight that on casual observation it would not be evident."

REMEDIES.

Since the report of the Royal Commission more interest has centred round the subject, and there is good reason to hope that fitting legislation will shortly be enacted.

If much is to be done for the feeble-minded, and if they are to be made self-supporting in any degree, it is necessary that they should come under control early. If taken as children they are more amenable to discipline, more able to learn useful occupations, good instead of bad habits can be taught, and they can be guarded from dangers and temptations which only, degrade them to the lowest levels of society.

Perhaps one can justly say here that most of the feeble-minded never become mentally anything else but children and very unintelligent

children at that, though it must not be forgotten that they develop in physical strength and attain with puberty the instincts and passions of the adult.

I once examined and visited at their homes some thirty mentally deficient children, who had been rejected from the special schools in Manchester for various reasons.

Many of them were a source of endless trouble and annoyance to their parents, who would have been only too glad to obtain some relief from their burden; others were jealously guarded and hidden away by doting mothers, who lived on, hoping for some improvement, grudging no effort and never admitting that the child was a source of immense anxiety and care.

Parents, however fond, do not as a rule live long enough to be life-long guardians, and also they, as persons, who often meet with little success in controlling the child, are not likely to be able to control the adult. Life-long care of the feeble-minded person, strengthened by legal powers of detention in an institution if necessary, is therefore of paramount importance, and some well-ordered and well-organised scheme by which this can be brought about is urgently needed.

Such a scheme is that suggested by the Royal Commissioners, whose recommendations include (1) The establishment of a Central Board of Control for the general supervision and protection of mentally defective persons, and for the

regulation of the provision made for their accommodation and maintenance, care, treatment, training and control.

(2) That all mentally defective persons be registered at the office of the Board of Control, and that arrangements be made for the necessary visiting of these cases.

It may be mentioned here that such recommendations are not intended to mean that feeble-minded children, who can be suitably provided for at home, should be maintained at the expense of the community nor that there should be undue interference with the privacy of family life.

(3) The appointment in the various districts of Committees or Local Authorities, part of whose duties would be to arrange for the suitable care of mentally defective persons in institutions, houses or in private on receiving requests for such control from parents or others in charge of such mentally defective persons.

(4) The registration and supervision of suitable houses and homes and of persons capable of exercising a friendly wardship, so that some feeble-minded children may be received and controlled in places other than the large colonies and institutions. This method has been successfully practised in Scotland.

(5) The provision of trained visitors who can exercise a supervision over all registered mentally defective persons, who are not in colonies or other institutions.

(6) The registration and classification of cases of mental deficiency under some definite plan. The evidence of Dr. Shuttleworth was that in the case of "well-off feeble-minded people" to make "mental defect" a "notifiable disease" would be impracticable and unnecessary because

they generally have very good homes to go to and their parents and friends manage them afterwards. . . . As regards mentally defective children of a higher social class than those attending public elementary schools, the education (or other) authority should be satisfied that the parents provided special instruction of a suitable character in early life, and that, as far as might be necessary, adequate care and control was provided in adult life.

The Commissioners, taking this and other evidence by medical practitioners into consideration and also the fact that compulsory notification at the present time would probably raise needless apprehension and opposition to their scheme for continued care, do not recommend compulsory notification of all cases, but consider that if the local committees take steps, through medical men, to find out, as far as possible, the number of mentally defective persons for whom the council is liable to provide, using the school registers as a basis and receiving information from other institutions such as prisons, work-houses, "colonies" and other homes, they would arrive at a satisfactory enumeration of the cases of mental defect in their district.

The definite classification of cases according to some recognised scale is important since the Commissioners recommend that there is need for the asylums to specialise in the different grades for the purposes of economy, and facility of administration. The clogging of institutions can be prevented if they all come under the control of a Central Authority, which can pass on and adjust the various cases to the various institutions.

The methods of provision suggested are to build intermediate or simple, inexpensive homes in connection with the asylums, and to work the residential institutions in connection with the special schools.

By these means manual, industrial and other training would be provided for the mentally deficient children who could take advantage of it, occupation with permanent care would be found for them when they grew up, and provision would be made for all grades of cases. It must be pointed out, however, that detention in an institution, except that it is more expensive, is far better than any system of boarding-out. Feeble-minded persons who are not in institutions are seldom under the efficient control needed by all but a few exceptional cases.

However, the cost of caring for cases in an institution is a serious item. The Commissioners estimate that for the 66,509 cases "needing provision" the cost would be £1,175,802 under

their scheme, meaning an increase of £541,492 over the amount spent at present in the care of the mentally defective: but point out that some of this increase would be borne by the parents and friends of the cases dealt with. They think that the present methods are abnormally wasteful, being founded on entirely wrong principles, so that much could be saved by reorganisation, the adoption of uniform methods and by the different "colonies" and "hospitals" specialising in the different grades of cases, and in this way being able to work more economically. The accounts of institutions should be audited and a system of collection of contributions from relations enforced.

With regard to the cost of maintenance at colonies or institutions the capital cost should not be more than £100—£120 per head, and the cost of maintenance, exclusive of capital charges, should be about 8-9 shillings a week. The children at Sandlebridge cost £29 10s. per head per annum, including charges for land and buildings and teaching. The building that has proved most useful cost £63 a bed to erect and furnish. In America the capital outlay varies from £90—£160 per head, and at Waverley, a large colony institution and farm colony for more than 1,000 cases, the total maintenance expenses, including repairs and improvements, came to 14 shillings a week; but the difference of

money value in America must be taken into account.

The Commissioners also recommend that the protection of property at present extended to lunatics, idiots and mentally infirm persons should be extended to all mentally defective persons, and that there should be no penalties such as disfranchisement of the parent, attached to the use of the opportunities offered by the Board of Control.

It should be pointed out that the recommendations are based on the principles:—(1) That all persons, who are really incapable of earning their living when left to their own devices, should receive from the State such special protection as may be suited to their needs. (2) That the community should be protected from the harm that may be done by allowing feeble-minded persons to be free to follow their own inclinations or to come under the control of ignorant or unscrupulous individuals.

(3) That the different circumstances and different needs of the various cases necessitate the provision of different methods suitable to the several types of case and not the provision of any one fixed method.

(4) That such cases should be dealt with primarily on the ground of their mental defect and not, as hitherto, on the ground of their poverty, their violence or their crime.

During the last two years the question has been

prominently before the public, and in July 1910, an influential deputation waited on the Prime Minister, the Home Secretary and other members of the Cabinet to point out the urgent need of further legislation.

We have now got some idea of the problem of the feeble-minded and of the schemes by which its evils can be remedied. Criticisms of these schemes abound, criticisms based on the ground of expense and of the uselessness of wasting time and energy on the training of these persons. It is very true that we cannot "gather grapes from thorns or figs from thistles," but the veriest tyro knows that if the useless thistle is not kept within bounds and prevented from spreading its kind broadcast, it may do untold harm and involve a far greater expenditure of time and money than if efficient measures for controlling it had been taken from the first.

CHAPTER II.

PHYSICAL CHARACTERISTICS.

CLASSIFICATION OF FEEBLEMINDED CHILDREN.

If we classify cases of mental deficiency according to their causation we can divide them into two great classes (1) Primary (Genetous), which form 90 per cent., and (2) Secondary, Accidental or Acquired, which form 10 per cent. of the whole. The term Genetous as used by its originator, Dr. Ireland, includes all primary or developmental cases as distinguished from those of acquired defect.

On the other hand, if we classify cases according to their physical characteristics we find that, though feeble-minded children may belong to one of the six special types described in Chapter V, the great majority do not, being to the uninitiated at first sight very little different from ordinary children. There is always a tendency to exaggerate the importance of definite types and definite deformities, and it is very necessary to fully appreciate the fact that the majority of feeble-minded children show no constant physical characteristics by which they may be recognised.

The six special types referred to are (1) the Cretin, (2) the Mongol, (3) the Microcephalic,

(4) the Paralytic, (5) the Meningitic, and (6) the Hydrocephalic; these can be recognised by their physical characteristics, but tend to be of the lower grades, coming more under the headings of imbeciles and idiots than of feeble-minded.

In considering the statistics relating to mentally deficient children it is important to distinguish between those coming under observation at a hospital and those examined and found suitable for admission to a special school or an institution for high grade cases. The former include all grades of mental defect and the latter feeble-minded children only. Of 100 consecutive cases of mental deficiency (all grades) under my observation at the Manchester Children's Hospital, Pendlebury, 7 were cretins, 16 mongols, 11 microcephalics, 7 paralytic, 3 meningitic, 0 hydrocephalic and 2 followed measles.

Dr. Still, taking 350 cases, found that 10 or 2·8 per cent. were cretins, 77 or 22 per cent. mongols, 22 or 6 per cent. microcephalics and 26 or 7 per cent. paralytic.

On the other hand of 904 cases examined for admission to the Manchester Special Schools 8 or 0·9 per cent. were cretins, 11 or 1·1 per cent. mongols, 5 or 0·55 per cent. microcephalic, 19 or 2 per cent. paralytic, 5 or 0·55 per cent. hydrocephalic and 1 or 0·1 per cent. meningitic.

Dividing these cases into the 784 who were fit for admission and the 120 who were rejected as too defective, we find that of the 784 cases admitted

(some of them on probation) 6 or 0·7 per cent. were cretins, 4 or 0·5 per cent. mongols, 5 or 0·5 per cent. microcephalics, 9 or 1·2 per cent. paralytic, and 2 or 0·25 per cent. hydrocephalic.

Of the 120 cases rejected as too defective 2 or about 2 per cent. were cretins, 7 or 6 per cent. mongols, none microcephalic, 10 or 9 per cent. paralytic, 3 or 2 per cent. hydrocephalic and less than 1 per cent. meningitic.

The figures can be tabulated as follows :—

	HOSPITAL CASES. (All grades.)		FEEBLEMINDED.		
	Lapage.	Still.	Rejected.	Admitted.	All Cases.
	%	%	%	%	%
Cretins	7	2·8	2	0·7	0·9
Mongols	16	22	6	0·5	1·1
Microcephalics ...	11	6	0	0·6	0·55
Paralytics	7	7	9	1·2	2
Hydrocephalics ...	0·0	—	3	0·25	0·5
<i>Of no special type</i>	54	50	59	91	87
Epileptic	—	6	20	5	7

These figures show conclusively that the special types and notably the mongols and paralytics tend to be of low grade. Cretins, being improvable, often come under notice first as hospital cases. The figures also show a more important fact, namely, that 91 per cent. of the children suitable for treatment as feeble-minded are not of any special type, even when epileptics are included as a separate class.



PLATE II. Feebleminded Children of the Ordinary Type.



PHYSICAL DEFECTS.

(1) STIGMATA OF DEGENERATION.

The stigmata of degeneration are common in feeble-minded children and in other children with a neuropathic inheritance, but it is perhaps as well to state at the outset that too much importance must not be attached to them, for they do not necessarily mean that there is any tendency to mental deficiency, and they are often present in ordinary children. Also their presence or absence does not give any indication of the degree of mental defect. They are, however, more marked, more numerous and more often found in feeble-minded than in ordinary children. Such stigmata are developmental in origin and are present though not always evident at birth.

(a) Defects in the size and shape of the head.

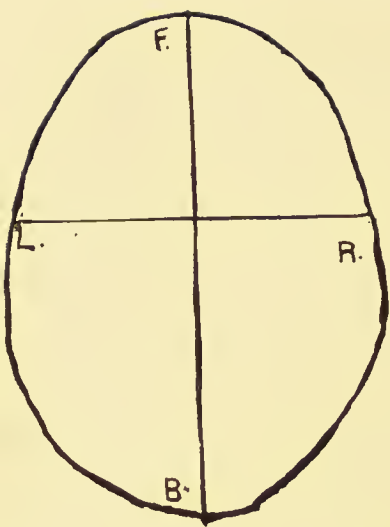
Such defects are estimated much more exactly by contour measurements than by judging from the appearance or feeling with the hand, but for ordinary purposes the greatest circumference taken with a tape-measure is enough. When there has been an early paralysis, the skull on the side on which the brain is affected often shows a marked diminution as compared to the other side (Petersen). Ashby and Shuttleworth both comment on the fact that deficient occipital development or poor formation of the back of the head is common in the feeble-minded. Other writers state that the frontal deficiency is common

also. However, it is not possible to form an idea of the local or small abnormalities of the brain from external skull measurements, because the shape of the skull is not always a true indication of the shape of the brain beneath. Abnormal development or undevelopment of one part of the brain may simply mean that the neighbouring parts of that organ are displaced and not that the skull is altered in shape. On the other hand the grosser defects certainly make a difference to the size and shape of the skull as is shown in microcephaly, where the very small brain allows the skull to close up early, giving the diminutive head that is characteristic of the condition.

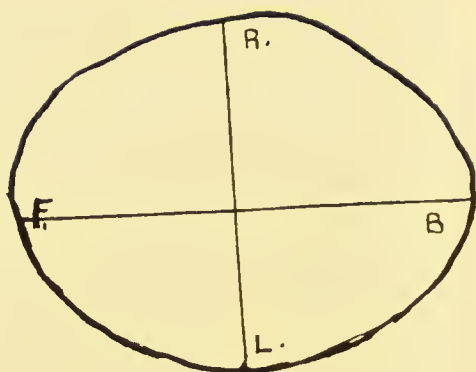
The detailed examination of the heads of 200 feeble-minded children by the methods described in Appendix II. gave the following results:—

The most common defects of the heads of feeble-minded children are smallness and asymmetry. The normal circumference of the head of a school child should be over 20 inches, and 34 per cent. of the cases had heads less than 20 inches in circumference while 26 per cent. had asymmetry. Taking the opening of the ear as a fixed surface mark, the posterior or occipital part of the skull was found to be much smaller in the feeble-minded than in normal children. This deficient occipital development was most noticeable in the cases with poorest mental powers (see Table V). The value of the measurement round the greatest circumference of the head is that it

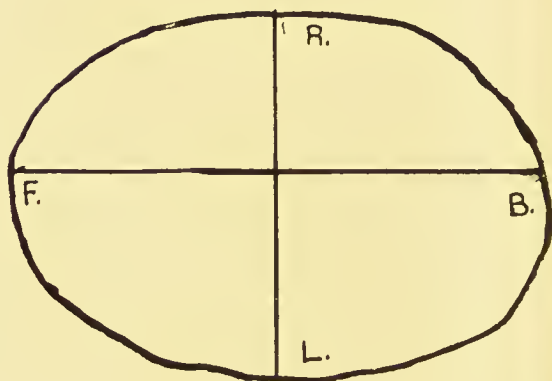




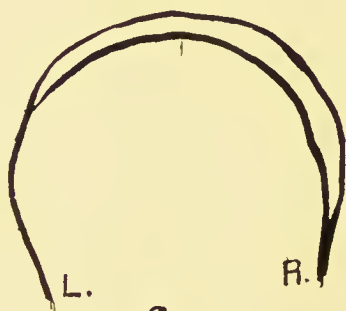
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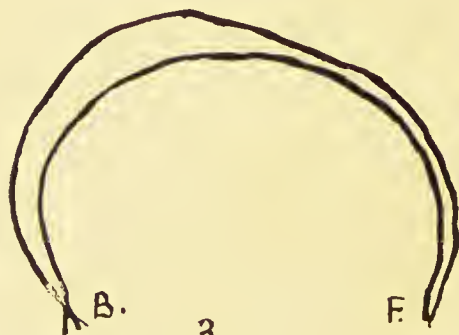
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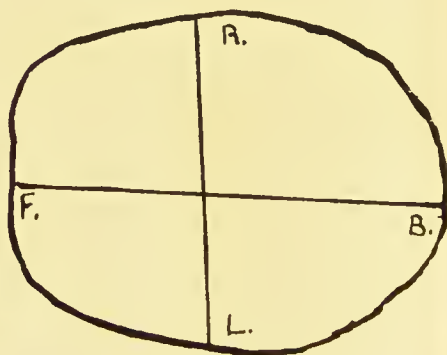
5.



2.



3.



6.

PLATE III. Tracings to show Abnormalities of the Head as found in the Feeble-minded (for description see p. 51).

helps to show poor occipital or frontal development.

The average cranial capacity obtained by multiplying the length, height and breadth together (an inexact method but one giving approximate results) showed that 20 children of normal intellect gave an average of 3105·5 c.c., 20 feeble-minded classed as "Good" 2969·6 c.c., and 20 feeble-minded classed as "Bad" 2723·3 c.c.

As will be seen from Table II. the averages of the head measurements did not differ so much as one might have expected, this being especially so in the case of the maximum circumference. This only serves to emphasise the point that the majority of the feeble-minded do not show any grossly marked physical deformities or differences from ordinary school children.

Therefore the common cranial defects are those of asymmetry or irregularities in the conformation of the skull rather than marked diminution of capacity, though there is a certain tendency to diminished capacity corresponding to the degree of mental deficiency.

DESCRIPTION OF PLATE III.

1, 2, & 3. Tracings of the head of E. C., æt. 11 years, a child of average intelligence. An example of a well-shaped though small head. Inside tracings 2 and 3 are tracings from a feeble-minded child of approximately the same age.

4. Tracing of the head of E. R., æt. 9 years, a feeble-minded child, who had suffered from a right hemiplegia 5 years ago. An example of the rounded,

small head. The right-sided hemiplegia and the smaller left side of the skull correspond. The middle line in front and behind was carefully marked in all tracings.

5. Tracing of the head of H. C., æt. 12 years. An example of an asymmetrical head.

6. Tracing of the head of C. B., æt. 11 years. An example of marked rickety deformities.

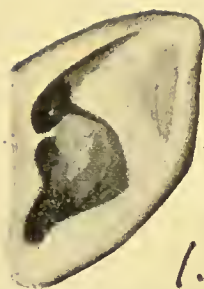
The head measurements in each case were:—

	Tracings 1 2 & 3.	Tracing 4.	Tracing 5.	Tracing 6.
Circumference	20 in.	...18½ in.	...21 in.	...20¼ in.
Basion to nasion over skull	15 in.	... —	...15 in.	...14 in.
Bitragal arc	11 in.	... —	...13½ in.	...13 in.
Antero-posterior diam.	18 c.m.	...16·5 c.m.	...19·5 c.m.	...17·7 c.m.
Occipital segment ex- ceeds frontal by ...	1¾ in.	...equal	...equal	...¾ in.
Bilateral diameter ...	13 c.m.	...13 c.m.	...13·8 c.m.	...13·7 c.m.
Right segment exceeds left by	equal	...¾ in.	...1 in.	...¾ in.
Height	12 c.m.	...11·5 c.m.	...13·7 c.m.	...11·5 c.m.
Bitragal diameter ...	11 c.m.	...10·5 c.m.	...11·5 c.m.	...12·2 c.m.
Distance from nasion to basion	13·2 c.m.	...13 c.m.	...14·5 c.m.	...13·5 c.m.

(b) *Deformities of the External Ear.*

The normal ear is seen in Pl. IV., No. 5, and, since it is originally developed from six processes or tubercles it is easy to see that signs of separation may remain or that some part may be deficient. The six tubercles form what are known as the crus helcis, the helix, the antihelix, the tragus, the antitragus and the lobule. The tragus and antitragus are respectively the parts just in front and just behind the opening of the ear. The lobule is the soft fleshy dependent part below the opening: the crus helcis, the helix and





1.



2.



3.



4.



5.



6.



7.



8.



9.

Plate IV.

the antihelix together form the upper and cartilaginous part above the opening, and the whole of the external ear outside the skull is known as the pinna.

DESCRIPTION OF PLATE IV.

I.—Defective left ear of T. H., showing deficiency of the lobule, absence of the fossæ, maldevelopment of the helix and a tendency to reversion to the pointed ear. The right ear was only deficient in the shape of the lobule.

II.—Defective ear of A. C. exhibiting general deformities in shape, but chiefly remarkable as showing a tendency to lobulation.

III.—Defective ear of G. M., showing general smallness with absence of the lobule.

IV.—Defective ear of J. J., an example of the large protruding ear with a heavy lobule.

V.—Normal ear (Keith's Embryology).

VI.—Defective ear of R. H., showing a deficient lobule, a deficient helix, fusion of the helix, antihelix and antitragus, and a general rounding.

VII.—Defective ear of E. M., showing deficiency of the upper part of the pinna.

VIII.—Defective ear of a Mongolian imbecile, showing smallness, general rounding and crumpling. The upper part of the pinna overhangs in a characteristic manner.

IX.—Defective ear of A. R., showing shallowness of absence of the fossæ, deficiency of the tragus and antitragus, and general mal-development.

An eminence known as Darwin's tubercle is to be seen at the upper angle, and this corresponds to the tip of the ear in the lower animals. In man the ear is turned over so that the tip points

forwards and downwards. It is not very uncommon to find the right ear different from the left, some children having a perfectly formed ear on one side and a defective one on the other.

Defects of the external ear include absence or deficiency of the lobule, irregularity or increased depth of the fossæ and deficiencies in shape or size of the whole pinna such as excessive breadth, diminished height, smallness and protrusion. Some authors describe more than twenty different kinds of abnormalities, but these, though interesting, are not of sufficient importance to be dealt with more fully here.

Defective ears were found in 32 per cent. of my cases, lobular defects being by far the most common. These lobular abnormalities are very common in ordinary children and are a very slight form of defect. The others are not so common and are more marked stigmata of degeneration. An unusual prominence of Darwin's tubercle is sometimes seen but it is hardly of the same significance as the other abnormalities of the external ear.

(c) *Deformities connected with the Eyes.*

Adherent epicanthic folds are everted ridges of skin starting from below the eyebrow and continued round the internal angle of the eye. They are generally symmetrical but may be only present on one side. Epicanthus is accentuated, but not caused, by depression of the bridge of

the nose, and these folds can be obliterated by pinching up the skin over the bridge of the nose; but they immediately return when the skin is released. They must not be confused with the plica semilunaris which is on the conjunctiva and not on the eyelid.

Epicanthus is not a very common defect. It occurred in 8.79 per cent. of my cases, and in 1.37 per cent. of the ordinary school children examined by Dr. Warner. Squint or strabismus is such a common condition in children that it can hardly be regarded as a stigma of degeneration. A condition known as nystagmus is not uncommon. Nystagmus is really a trembling of the eyes, which move very rapidly from side to side, especially if the child tries to turn them in any one direction. The condition is not likely to improve much.

(d) Deformities connected with the Palate and Jaws.

Certain deformities of the palate are stigmata of degeneration, but others are acquired. Like the other stigmata of degeneration the developmental deformities of the palate have received an undue importance, for if the palates of any unselected group of ordinary children are examined, quite a fair proportion will be found to be abnormal. However, there are certain deformities that are more common amongst the mentally deficient, and elaborate classifications

of these can be found in books on mental diseases. Petersen gives eight different forms. He found such defects in 82 per cent. of idiots, imbeciles and feeble-minded, in 76 per cent. of epileptics and in 80 per cent. of the insane.

There are two main forms, the V-shaped and the highly-arched palate, and there is often quite a big margin of ribbed and roughened gum-like tissue extending inwards from the teeth to where the high, narrowed arch of the palate commences.

Abnormalities of the palate occurred in my cases more often than any of the other stigmata of degeneration, being found in 67 per cent., but, as we have said, they are not uncommon in ordinary children and are not always of congenital origin.

Cleft palate is not a stigma of degeneration and is as rare amongst the feeble-minded as amongst ordinary children.

As we shall see later, deformities of the palate apart from cleft palate do not have much effect on speech, partly because the tongue is such a supple organ that it can adapt itself to a highly arched palate.

Prognathism or protruding jaw is described as a stigma of degeneration.

(e) Other Stigmata.

Another not uncommon stigma is an incurvation of the terminal joint of the little finger with the concavity of the curve towards the third

finger. The skin is often coarse, rough and liable to acne.

Comparison of numbers of feeble-minded with ordinary children shows that the former exhibit the stigmata of degeneration much more often and in greater number than do the latter: thus mentally deficient children often have a combination of one or two or three stigmata, and ordinary children may have the single stigmata but have them less often and the combined stigmata much less often than do feeble-minded children.

(2) HEIGHTS AND WEIGHTS AND GENERAL PHYSICAL CHARACTERISTICS.

Heights, Weights and Head Measurements.

It will be seen from Table II. that the average heights, weights and head measurements of 181 feeble-minded children, of ages ranging from 6 to 14 were smaller than those of ordinary children.

The table is divided into three parts, A, B, and C, and the children classified according to their ages into three groups, so that comparisons could be made with the tables given by Professor Hay and Dr. Mackenzie in their reports on Aberdeen and Edinburgh school-children. B. represents the corresponding part of Dr. Mackenzie's table and C the amount of the difference between the averages in A and B.

It will be seen that in all cases the average measurements are smaller in the feeble-minded, and that the disparity increases with age. Apart

TABLE II.

Age Group	Sex	Number Examined	Height in Inches	Weight in Lbs.	Maximum Length	HEAD (Measurement in Centimetres) Maximum Breadth	Cephalic Index	Height	Maximum Circumference
A. Above 6 & Under 9	M.	38	44.49	46.11	17.59	13.53	76.89	12	50.54
	F.	9	44.12	47.3	17.3	13.3	76.87	11.8	49.78
	M.	50	47.58	54.69	17.98	13.67	76.02	12.05	51.17
	F.	34	46.8	52.71	17.43	13.43	77.05	11.9	49.7
	M.	35	52.98	63.39	17.99	13.83	76.87	12.29	51.78
B. Above 9 & Under 12	F.	15	49.69	65.67	17.12	13.41	78.28	11.93	50.51
	M.	100	44.52	46.60	18.10	14.18	78.34	12.20	51.32
	F.	99	44.51	45.62	17.6	13.84	78.64	11.83	50.13
	M.	101	50.20	59.53	18.25	14.26	78.14	12.46	51.77
	F.	100	49.93	57.76	17.77	14.16	79.68	12.06	50.98
C. Above 12 & Under 15	M.	100	55.26	74.02	18.61	14.53	78.08	12.71	52.73
	F.	100	55.65	78.36	18.28	14.41	78.83	12.22	52.23
	M.	—	.03	.49	.52	.65	1.45	.2	.78
	F.	—	.39	—1.68	.3	.54	1.77	.03	.35
	M.	—	2.62	4.84	.27	.59	2.12	.41	.60
Above 12 & Under 15	F.	—	3.13	5.05	.34	.73	2.63	.16	1.28
	M.	—	2.28	10.63	.62	.70	1.11	.42	.95
	F.	—	5.96	12.69	1.16	1.00	.55.	.29	1.72

from their inherited powers of development and growth, the feebleminded suffer from many disadvantages, for they are more liable to disease and do not get the same opportunity to join in games or physical exercises as do ordinary children. There is often a great improvement in the physique and weight soon after the child has begun such exercises and games as are used at the special schools or the colonies. Nevertheless, the boys and men at Sandlebridge are noticeably small in physique, and the girls are also small but differ in that they, not uncommonly, become very fat as they grow older, and this in spite of good hard work. This obesity, which adds to their ungainliness, may in some cases be reduced by thyroid extract (MacIlraith).

The circulation is often very poor, so that cold hands and feet and chilblains are common, and it is very necessary to keep this in view when considering clothing and exercise. Taylor and Pearce found that organic heart disease is relatively more common in feebleminded children and is a causative agent in their downward course, and that the pulse is often irregular. They point out the advantages to the mind and body of treatment directed to improving the circulation.

Supernumerary auricles and fingers and other miscellaneous congenital abnormalities, such as harelip and cleft-palate, should not be included under the stigmata of degeneration, and though

interesting from a developmental and surgical standpoint, they are not especially common amongst the feeble-minded.

Deafness in childhood is due in most cases to disease, cases of congenital deafness being really rare. In feeble-minded children it is not at all easy to distinguish between deafness and want of attention, and we shall discuss this more fully later (p. 67).

Expression. See Plate V.

Defective expression is very common. Mobile, changeable features show a want of attention and an unstable temperament, and an apathetic, stolid look may mean that the brain is sluggish, but sometimes appearances are very deceptive. Creasing of the forehead, twitchings of the mouth, rolling of the eyes are all common, but it is hard to classify or describe the various characteristics that go to make up a defective expression. It is chiefly want of control of the features. To the practised eye the expression and control of the features and the general bearing are a great help in deciding whether the child is feeble-minded, and the habit of rocking to and fro in a mechanical way generally indicates mental vacancy, and is found more often in the lower grade of cases.

One has only to watch a group of feeble-minded children to see that most of them have some peculiarity.



PLATE V. Feeble-minded Children showing Defective Expression.

About 60 per cent. of my cases showed definite defects of expression. The characteristic is often worse when the child is self-conscious and doing nothing, but sometimes when the attention is concentrated on some action such as eating, twitchings and facial contortions may become much more marked. It is important to note, however, that not all cases show this defective expression, some of the very worst cases of feeble-mindedness being really beautiful children both in face and form.

Other peculiarities.

Some of these children are to a certain extent insensitive to pain though this is not a marked characteristic.

Disorders of menstruation are not uncommon, this function being in some cases absent or intermittent or in others very much delayed.

Some have a tendency to early degeneration of the tissues of the body, and therefore diseases such as muscular wasting may occur, and there are two cases of Pseudo-hypertrophic Muscular Paralysis at Sandlebridge at present, one having developed since admission.

Epileptic fits are also not uncommon; they must not be confused with hysterical fits, and it is not always easy to distinguish between the two conditions (see Chapter VI.). Isolated epileptic fits may occur at some epoch, such as dentition or puberty.

(3) DEFECTS DUE TO WANT OF CONTROL.

Want of control often accounts for the defects of expression just described, but more important results are the abnormalities in the general balance and carriage, which are very common. Many of the children are extremely clumsy and awkward in the playground or in the drill hall. This is due to poor development of co-ordination and control over the nerves and muscles and, though physical drill causes great improvement, feeble-minded children on the average are below the standard in co-ordination and in games or drill, partly because they lack application and partly because they are innately less active. It is curious, when first one moves about amongst a group of these children, to find how difficult it is to avoid knocking against them : they seem to be clumsy and unable to get out of the way.

Deficient or delayed control over the action of the bladder and bowels, which will be considered more fully later, is very common, though it is usually learnt before the child comes to school. Such cases are, like delayed walking and talking, simply a retarded development of the nervous control.

Slavering, a condition in which the saliva is constantly escaping from the mouth and running down the chin, is common, and is largely due to want of control of the lips. The condition can often be cured by teaching the child to hold suitable wedges between the lips for some time

daily or to practise other exercises that give control over the lips.

Summary.

Feeble-minded children show the single physical stigmata of degeneration more often and a combination of two or three of these stigmata much more often than do ordinary children, but too much importance must not be attached to the presence of these stigmata. Of the physical stigmata of degeneration diminution in the circumference and deformities of the head are the most important.

Feeble-minded children tend to be smaller than ordinary children and to be less well developed physically: they also tend to have poor circulations and to be less resistant to exposure and disease than is the ordinary child.

Most of them show a defective expression and poor development of control over the functions of the body.

CHAPTER III.

MENTAL CHARACTERISTICS.

It would be comparatively easy to write a long and interesting chapter by simply describing cases illustrating the mental peculiarities of the feeble-minded children, but to describe their mental characteristics in an ordered and scientific manner is another matter. The great variability between different children only adds to the difficulties of our task.

Some children are of high grade; some, though very few, are peculiarly bright in some special direction but just as deficient in others; some are more evenly deficient in everything; and finally some, though not very deficient, have no sense of right and wrong, being of the "Moral Defective" type.

Under-development of the mind may be due to any one of three causes or to a combination of two or more of them:—

- (1) Defects of the ways in or the receptive paths to the brain.
- (2) Defects of the central, receptive, storing-up and association powers.
- (3) Defects of the ways out or emissive paths.

Taking these in order—(1) Defects of the receptive paths are (*a*) those of the hearing apparatus and its centre in the brain, such as congenital or early deafness or partial deafness causing imperfect interpretation of sounds heard. (*b*) those of the sight apparatus and its centre, such as blindness or imperfect sight. (*c*) those of the touch and muscular sensations causing imperfect impressions of movements performed or of stimuli received on the skin or external parts of the body. Defects of these paths are not very important, for, though they may have some contributory effect in the causation of the peculiarities of a feeble-minded child, it is the central powers that are chiefly concerned.

(2) Defects of these central powers are (*a*) Deficiencies of the perception centres for each of the receptive paths. In this case stimuli are received up the paths but do not make sufficient impression on the brain to be fully appreciated. (*b*) Deficiencies of attention, memory, or one of the other mental powers, and finally (*c*) there may be deficiencies of the association, inter-linking and co-ordinating parts of the brain: when there is want of association, one idea does not call up several others.

(3) Defects of the outgoing paths may hinder development of the mind because they prevent progress and deprive the brain of sensations and memories that would otherwise be received. For instance, a child deprived of speech through

deformity cannot get on so quickly as other children, nor does its brain receive any impressions of the movements of the lips or of the sound of the child's own voice to store up. However, defects of the outgoing paths are never the sole cause of feeble-mindedness though they may act as contributory causes of the mental dullness.

The accompanying diagram (Plate VI.) may help to show more clearly how impressions may reach the brain, to what use they are put, and how actions result from them, memory of these actions being transmitted to the brain and stored up.

We shall now proceed to discuss certain of the mental abnormalities of feeble-minded children in greater detail.

ATTENTION.

Attention is of two kinds :—

- (1) Natural or spontaneous.
- (2) Voluntary or established by education.

Unless there is some power of sustained attention, stimuli that reach the brain are not properly used, nor are they stored up as experience; consequently it can be seen how important this power is for mental development. In cases with major defects very few stimuli reach the brain at all, such children being idiots or imbeciles.

Feeble-minded children have comparatively poor powers of attention, especially of the volun-

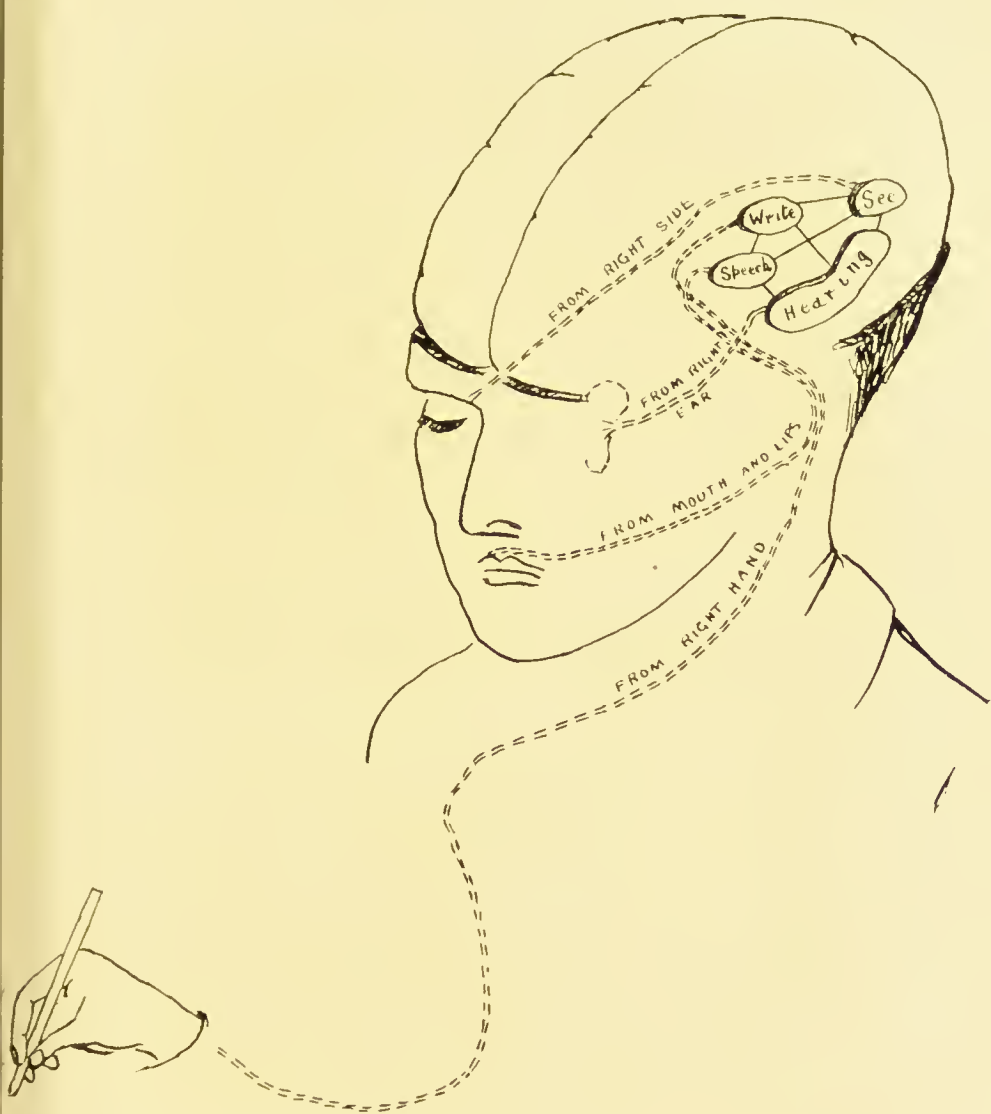


PLATE VI. Diagram to show the position in the brain of the four centres that have to do with the reception, the production and the storing-up of memories of speech, reading and writing. Note the association fibres joining up the four centres, each with the other three.

tary kind. In some cases the child is, as the mother says, "bird-witted," its thoughts flitting so lightly from one thing to another that little effect is made on the brain. On the other hand we see children so dull and apathetic that it is difficult to attract their attention at all.

Both of these types are common. It is important to know that the first is often of deceptively bright appearance, and in consequence may be thought to have a better chance of improving than the duller-looking child; but one must beware of being deceived by appearances. Some of the least improvable cases are of the first type; for instance such a child may scribble on a paper when asked to do so, but, noticing the fire, runs off to that, probably being attracted to something else almost immediately. Calling him by name or even shouting at him may make not the slightest impression, but unusual sounds such as the jingling of coins often do so.

An example of this type is—

Case I. L. C., a medium grade case. When testing him, it was at first thought that he was deaf because he neither answered questions nor noticed clapping of the hands or ringing of a bell. But when a penny was dropped on the floor, the child turned round in a moment and looked for the coin.

The slow child whose mental inertia makes it difficult to gain his attention may, nevertheless, be able to make some use of the impressions he does receive because he is not so easily distracted,

and when special efforts are made to attract and fix his attention, he may make surprising progress.

It is curious how difficult it is to attract the notice of a feeble-minded child from a distance. Shouting that would immediately attract normal children will produce no effect on a group of feeble-minded, though a more unusual sound, such as that of a whistle may do so.

Sustained attention, which plays a large part in education, is perhaps one of the highest of mental qualities, and it is certainly one of those which are very poorly developed in the feeble-minded, who have little power of concentration or forced attention, especially in considering abstract ideas. They are much better in applying themselves to manual tasks or in learning lessons where attractive objects are used.

MEMORY.

Closely connected with, but not wholly dependent on, the power of attention is memory, which varies very much in the feeble-minded who, though they are often unable to go errands or to remember the simplest instructions, sometimes have curious flashes, when they remember events that have happened some time before: "idiot savants" are also curious exceptions. It is quite possible to educate defective children, even idiots and imbeciles, up to a daily routine of duties and for them to carry it out with a certain degree of

thoroughness, but they need constant supervision to keep them up to the mark, and if left to themselves will degenerate.

WILL POWER.

The feeble-minded are very easily swayed and have little power of resistance to the will of others. It is this that forms one of the chief dangers of letting them loose amongst the community without any supervision or control, for they have not the will to resist temptation and in many cases come to be classed as criminals or drunkards. All tend to go with the current, accepting every condition and making no effort on their own behalf; a characteristic, which, though more marked in the lower grades, is more striking in the higher grades, from whom more is expected.

A Mongol boy was one day found tying a string round the throat of a much bigger boy, who, though a fairly high grade case, was making no effort to save himself from what were really serious attempts to strangle him. There is no doubt that he would have allowed himself to be strangled by the weaker child so far as his safety and escape depended on any efforts of his own to defend himself.

This acceptance of conditions and surrender to the will of others is a very definite and perhaps the most definite characteristic of the feeble-minded, so that especial care must be taken to guard against it. In some ways it is a good

thing, making discipline easier and discontent less frequent; but it also leads to a good deal of trouble. One child may make a suggestion and the rest follow like sheep, just as on the occasion when a group of boys were found working stripped to the waist, having followed the example of one boy who thought it was rather a fine idea. This same boy once set all the others to drink the dirty water from a ditch by the roadside and they obeyed without question.

Some children, however, may be very obstinate and passionate, often in pursuit of a strange whim or fancy.

One girl, A. R., conceived a great attachment to a younger girl, S. A. P., and could not be consoled unless she was constantly with the other child. It became necessary to separate them and put them in different homes. A. R. then went to the length of trying to starve herself because the other girl had been punished.

The feeble-minded have comparatively little enterprise and what they have is often misdirected, while anything out of the ordinary puzzles them. Most have the sense to seek shelter from a wetting rain or avoid physical discomfort as far as possible, but even this cannot be relied on, and for this reason alone many are not fit to be left without supervision. An idiot is not capable of guarding himself against common physical dangers, and a feeble-minded child, though never as bad as an idiot,

often has to be watched carefully since he may not complain of cold or pain, bad enough to be a serious menace to his well-being.

Dr. Fernald of Waverley, America, tells how one of the feeble-minded men under his care, was sent to plough a field and told not to come back till he had finished it. The man did not return till a very late hour and when he did come back, it was found that the horse had kicked him and had fractured his arm early on in the day. He had finished ploughing the field in spite of his broken arm. He had not the sense to see that his accident should have prevented his going on with his work, but had gone on till the instructions, which were all-important to his simple mind, were fulfilled.

Some are less sensitive to pain than are normal people, but this is not a marked characteristic. It is found more frequently in idiots and imbeciles. Possibly those who seem cruel or callous may do so because they do not understand what pain means; but it is more often want of thought or consideration.

TEMPERAMENT.

The phlegmatic and the sanguine temperaments, in both of which there is a small after-effect, are often found.

Phlegmatic children are not worried by any events but go on in a state of indifference, accepting all things as they come and seldom being disturbed. They are neither subject to storms of passion nor sensitive to rebuke and in conse-

quence are very difficult to teach. The sanguine are different. They are more lively and apparently take a greater interest in things, but nothing has much lasting effect on them; they are impressionable, emotional and subject to sudden outbursts which, however, soon pass, since generally the memory is poor and the power of attention bad.

The melancholic type may dwell on a fancied grudge for some time and even threaten to commit suicide, or they may develop melancholia and become insane as well as feeble-minded.

Many of the children are very sensitive to rebuke and much pleased with approbation; they do not like being passed over at an inspection, and an examination by a doctor can easily be made into a special treat for them, while a rebuke publicly administered will be enough to punish many of them pretty severely.

ASSOCIATION AND IDEATION.

These powers are very important for education in abstract ideas and for reasoning, in both of which the feeble-minded are especially deficient, and a good test is to ask the child questions about some picture or object or about school.

In the brain, chiefly in the frontal area, there is an enormous number of association fibres stretching across from centre to centre and linking up receptive paths either with other receptive paths or with outgoing paths or with

higher functions. Impressions received are stored up so that a stimulus may, by travelling along several association paths, call up various memories, both visual, auditory and muscular. Thus the word school entering the brain by the auditory paths calls up other auditory memories such as the voice of the teacher, the visual image of the school-room and school-fellows, with perhaps the physical sense of pain conjured up by the recollection of some hurt received at school. In this way a stimulus may travel along many association paths and call up many memories at the same time enabling the mind to reason and judge from the impression received. It is easy to see how absence of or diminution in the number of these paths will render the workings of the mind incomplete and often disorderly, and there is actually this diminution in the association fibres and nerve cells in the brains of the feeble-minded.

High grade cases can reason fairly well about everyday events, but cannot follow out a line of reasoning very far, and low grade cases have much weaker powers.

One child, a microcephalic, shown in Plate IX, who was watering some cabbages, knew quite well that he was doing it to prevent their drying up; but when asked whether he would water them if it was raining he first said yes, then after an interval said no, because he would not be allowed to come out in the rain. The idea of rain meant to him staying indoors, but

his powers of reasoning did not carry him far enough to see that the cabbages would not need watering on a wet day. Other higher grade children, questioned in the same way, could readily follow out the line of reasoning and would not have watered plants in the rain.

In imagination too these children are generally lacking; they may be able to invent a world for themselves as the normal child does, but it is a much simpler world and more often they are happy in the arrangement and rearrangement of a few treasured possessions; they are also fond of attributing human characteristics to inanimate things. On the other hand Moral Defectives are certainly not wanting in imagination of a mischievous type and will invent most plausible tales about other people.

OTHER MENTAL FACULTIES.

In idiots the higher emotions are wanting and they have no feelings of shame, kindness or unselfishness, but the feeble-minded are not so bad. Defective control often allows an unusually free play to the emotions so that outbreaks of violence and temper are common; but though some may be unconsciously cruel and others may have an ineradicable impulse to irritate or injure animals or persons weaker than themselves, the majority can be trained up to habits of kindness and gentleness. This is shown in some cases where the boys at Sandlebridge have been given

duties involving the care of animals, and in the way in which stronger boys protect and help the weakly and helpless boy with muscular paralysis.

Feeble-minded children, especially the lower grade cases, may be entirely without the sense of shyness and reserve that is noticeable in a normal child. On the other hand some are excessively shy, and for this reason are very hard to examine, so that it is difficult in a certain number of cases to estimate the child's mental capacities at the first examination, and the final judgment has to be delayed till the child has been under observation for a little time.

Idiots have little or no sense of shame, but the feeble-minded have it fairly well-developed, a very effectual punishment being that of simply putting them into disgrace. They have not exactly a well-developed conscience but they can be made to feel that they are responsible to those in authority. Natural modesty is not an outstanding feature, and amongst the girls it is often lacking to a considerable degree, but it is possible by discipline and example to teach the children a great deal, and to make vast improvements in their deportment and manners, though there are always a certain number of very intractable cases.

A little harmless vanity is a very good thing and should be encouraged, since it makes the child take more interest in his or her appearance and be more clean and neat. For this reason best clothes and clean linen sometimes have a

very beneficial and restraining effect, and it is a good practice to see that the children do have certain times and days when they put on their best clothes and their best manners.

Home-sickness is not very common, and unless the children are wilfully unsettled by their relations, they are seldom really discontented with institution life, nor do they show very strong desires to go home. They are readily impressionable, but their feelings, however strong and uncontrollable they may be at the time, are not really deep or lasting. The departure of a favourite teacher may be the signal for a terrible scene of weeping and wailing, but it is all over very soon and the new teacher duly installed in their affections.

MORAL DEFECTIVES. Plate IX, p. 113.

A "Moral Defective" has already been described as a person who, by reason of innate defect displays at an early age vicious or criminal propensities which are of an incorrigible or unusual nature, and are generally associated with some slight limitation of intellect. Moral defectives of the feeble-minded class are often mentally very little below the average child. They are nevertheless feeble-minded in that they have a definite and incurable mental weakness that necessitates their being under constant supervision, and there is a real perversion so that an impulse, which often comes quite suddenly,

drives the child to do things that he knows to be forbidden. A wrong done in a fit of furious temper is only loss of control, but moral defectives, though very liable to yield to sudden temptations to do wrong, often *deliberately map out* and execute plans to do harm to others, the ingenuity and cunning displayed being often surprising. After having committed a misdeed they may seem genuinely sorry and may do everything to express their sorrow; but it does not deter them from further outbreaks. Luckily discipline and judicious punishment have a certain effect on institution or school cases, so that their outbreaks can be considerably diminished in number though they can never be eradicated. These children must not be confused with those who do wrong, either because they are ignorant or because they have no will of their own and simply follow suggestions made to them, such cases being usually of low grade and not really moral perverts. True moral defectives really form a very small proportion of the feeble-minded, and quite a number of feeble-minded children who have never had the benefit of proper discipline or care are wrongly put down as belonging to this class.

Discipline and teaching can work wonders with cases that at first promise to be very bad.

In America moral defectives are said to form a fairly large proportion of institution cases and to give a good deal of trouble to those in authority,

but statistics of the various institutions vary considerably, and probably much depends on the type of case admitted and the age at which they enter.

Moral defectives are, many of them, of very high grade, and if their energies can be turned and kept to useful purposes they form good workers and stimulate the others, though of course they need constant supervision.

We have seen from Chapter I. that 10 per cent. of habitual criminals are such because they are feebleminded, some of them being natural criminals and some being so easily led astray that they are unable to keep off the downward path of crime, and perhaps "Natural Criminals" or "Habitual Offenders" would be better names for these cases than Moral Defectives.

Many of the cases applying for admission to Sandlebridge were reported to be quite unamenable to discipline or to treatment in any form, but, since they come at an early age, kindly and firm treatment has transformed most of them from sullen vicious children to fairly obedient and useful workers. These are not moral defectives but cases that have not been taught any sense of right and wrong.

DEVELOPMENT OF THE POWERS OF WALKING AND TALKING.

Feebleminded children are late in learning to walk and talk, so that a good deal can be learned

about the likelihood of mental development from the age at which these powers appear.

A child should learn to walk and talk between the ages of nine to fifteen months, but of course various diseases may retard development of walking, and sometimes, without any known cause, children who are not feeble-minded are very late in learning to talk. Retarded development of these powers does not definitely mean that there will be permanent mental deficiency, but it means that some parts of the brain, either the centres or the receptive or outgoing paths are slow to take up their functions, and that there is something delaying the evolution of the mental and physical faculties.

Infirmities such as rickets, chronic tuberculous disease, ear disease or wasting diseases are all capable of retarding the development of the mental and physical faculties and of causing mental backwardness, but the *power to develop* is present, and it is generally possible to distinguish mere backwardness from feeble-mindedness.

When speech is late in developing it may be either (1) because the perception centres are undeveloped and the receptive paths unopened, or (2) because the cortical brain centres and emissive paths are in abeyance, or (3) because intelligence and will are lacking. The development of speech must be anxiously awaited, for the longer it is delayed, the greater is the likeli-

hood of permanent deficiency. The relation of the degree of mental and speech defects to the ages of learning to walk and talk are shown in the following table :—

TABLE III.

Table showing the average ages at which five different classes of feeble-minded children commenced to walk and talk. "Good," "Medium" and "Bad" refer to the mental capacity as estimated by the teacher. "Defective speech" comprises consonantal anomalies (excluding "f" for "th"), lisping and marked stammering.

Classification of Case.	Average age,	
	Walk.	age, Talk.
61 cases classed as "Good" ...	1·5 years	1·8 years
44 cases classed as "Medium"	1·8 years	2·0 years
50 cases classed as "Bad"	2·2 years	3·5 years
88 cases with good speech.....	1·6 years	1·9 years
64 cases with defective speech	2·2 years	3·2 years

It is clear from this table that the greater the degree of mental deficiency the later the child will learn to walk and talk. It is possible that lateness in talking might have an effect on the development of the mental powers of a child not feeble-minded; but to say that inability to talk is the cause of feeble-mindedness is to put the cart before the horse. In any case the effect of such delay is slight, for children deaf from early infancy do not suffer in mental power, in spite of the fact that talking is only developed late by special tuition.

This table, as well as showing the definite

relation between the delayed development of talking and walking and the degree of mental defect, also shows that children with speech defects learn to speak and walk later than those without them. This is chiefly explained by the fact that children with speech defects tend to be of low grade, and partly by the want of exercise of the various parts of the speech apparatus.

CONTROL OVER THE BLADDER AND BOWELS.

Control over the action of the bladder and bowels is often deficient and delayed in the feeble-minded, though to a lesser degree than in idiots and imbeciles. Like lateness in walking and talking, it is the result of deficient sensation or of poor development of the power of control over the muscles. As a symptom aiding the diagnosis of feeble-mindedness, it is of considerable value in the earlier years of life, but a feeble-minded child generally develops this control to a great extent before coming under examination for admission to a special school. It is a symptom which corresponds to a large extent with the degree of mental deficiency, and with a few exceptions the later the age at which control develops, the worse the prognosis as to the future mental state.

HABITS.

Habits such as eating clay or biting the fingers are generally evidence of a greater degree of mental defect.

One of the girls at Sandlebridge had to be prevented from picking out and eating fish heads and other offensive matter from the dust-bins. She was one of the low grade class.

Want of cleanliness and neatness is often due to laziness and lack of teaching, but the lower grades are not readily educated up to good personal habits. Feeble-minded children may not be able to dress themselves and are usually later in learning to do so than are normal children.

READING AND WRITING.

Mere inability to read cannot be taken as indicating mental deficiency, unless there is evidence that the child has had careful individual teaching and that the speech is good. It is the child's manner of reading or attempting to read that gives a valuable clue to the mental state. A nervous child hesitates, refuses to begin and often breaks down; an impulsive or careless child hurries on, regardless of mistakes: a backward child is often ashamed of his inability to read and may break down for that reason. Feeble-minded children, if they can read at all, show several peculiarities. For instance some commence readily, but they soon tire or the attention wanders, with the result that mistakes become frequent and pass uncorrected, and the child evidently has no idea of the meaning of the text. Others do not attempt to read or only do so after a large amount of persuasion.

Writing is, perhaps, a more valuable index to the mental state than reading, because a child often learns to write his name before he can read or spell words; moreover, besides showing certain mental characteristics, the act of writing calls into play the powers of muscular control and neatness of movement. Some of the children have great difficulty in deciding where to begin; others write as far as the second or third letter and then go on with a meaningless jumble, perhaps recovering later and adding the remainder of the word; others again write one letter reversed or else make the curious mistake of reversing a word and writing "god" for "dog." This last peculiarity is quite common and sometimes persists in children who have been in the schools for a year or more.

ARITHMETIC AND CALCULATION.

Feeble-minded children are not good at calculation of any sort, and few learn more than simple addition. Some, with teaching, can do more, and a few can do simple sums in pounds, shillings and pence, but the result is certainly not worth the time and energy spent by the teachers, for such knowledge is of little use to persons who can never be fit to have the control of money, except in very small sums indeed; therefore it is not worth while making laborious efforts to teach them the value of pounds, shillings and pence when they can spend the time in learning useful

things. Very many cannot even add and subtract beads or bricks with any great degree of accuracy, though they do much better when they have objects instead of figures in front of them.

MANUAL WORK.

It is a very good thing that these children have, comparatively speaking, a certain amount of aptitude for manual tasks. If they are to be happy their minds want occupation and interest so that some simple but congenial task is often the cause of marked improvement in a child who has previously been gradually sinking every day to a lower level of intelligence. A crippled mind cannot cope with abstract ideas as well as it can with things concrete and actual.

The various occupations suitable for these children are described later, but the point that any occupation, however simple, is better than none is an important one. It was Cowper who said :—

“ Absence of occupation is not best,
A mind quite vacant is a mind distressed.”

and this certainly applies to the crippled mind as much as to the normal one.

Some children have to start with absurdly simple tasks, but they may improve a great deal in consequence and come to be able to do useful things. Gardening and farm work suit them

very well because the work is out of doors, and the latter is especially suitable because they have usually a great liking for animals. Certainly some animals seem to have an instinctive liking for the feeble-minded and to have less fear of them than of normal persons. Laundry work is very suitable for the girls, but they should, if possible, have outdoor occupation as well. These children can also be taught to paint and draw and so learn to judge of form and colour, but too much time must not be spent over this as it is better to pay most attention to teaching them useful things.

Many of the foregoing remarks apply more or less to ordinary children, and many of the feeble-minded are not at first sight definitely defective; but a little experience soon shows that to say that one of these children of twelve is equal to an ordinary child of five is, as remarked by Dr. Ashby, an insult to the child of five. A party of feeble-minded boys aged from twelve to sixteen need far more help in starting for a walk than would a set of ordinary children of seven or eight, and when it comes to abstract ideas or more complex mental processes, the difference is more marked still.

The high grade moral defectives have the greatest mental powers, being, apart from their special failings, not very far below the range of ordinary intellect.

CONCLUSION.

The brain of the feeble-minded child is deficient in association paths and in receptive powers, so that the mind can neither make full use of stimuli received nor develop to the normal extent. This under-development, which is permanent and due to an actual numerical deficiency of nerve cells and nerve tissues, is of an irregular nature, the children differing in the kind and degree of the defects they present.

CHAPTER IV.

DEFECTS OF SPEECH.

Defects of speech are common and important amongst the feeble-minded.

The speech apparatus consists of three mechanisms (1) the lungs, which provide the blast of air to produce sound; (2) the larynx and vocal cords, which vibrate in this rush of air, and (3) the mouth, lips, tongue and teeth, which form the consonants, with the palate and nose acting as sounding boxes. These three mechanisms are under the nervous control of the brain, and since their muscles have to perform very exact and complicated movements it can be seen how necessary is constant practice and how important is stimulation of the receptive paths for the speech centres.

In the last chapter we have seen how impressions reach the brain, and reference to Plate V. will help to show how speech is developed and controlled.

There are three chief sources of the impressions that go to develop sensible speech, viz. : (1) from the hearing apparatus, (2) from the seeing apparatus, (3) from the sensations of the muscles, especially from those that have to do with speak-

ing and writing. These sensations are conveyed to four specialised centres in the brain, each of the four centres communicating with the other three by interlinking fibres (see Plate V.).

Thus impressions reaching one centre stimulate others, and one centre can call another into play. For instance, by these inter-linking paths the centre controlling the movements needed to produce speech may be stimulated from the hearing centre, or on the other hand, the movements that have produced a spoken or a written word may be transmitted to a sensory centre and stored up there.

When one wishes to remember a word or name it is better to store up as many memories as possible; therefore it is better to hear it spoken (auditory centre), to see it written (visual centre), to speak it (memory of lip movement) and to write it (memory of hand movement). This illustrates the value of illustrations and note-taking in lectures and of a combination of lectures and reading. Some people are strong visuals and remember what they have read and seen better than what they have heard; others, on the contrary, receive more lasting impressions through the auditory channel. Some children are backward because they are "word-blind" or "word-deaf," that is, they have some defect in the centres that receive the impressions of written or spoken words, and it is probable that a

proportionately large number of feeble-minded are so constituted. (Thomas.)

CAUSATION OF SPEECH DEFECTS.

We shall consider the causes of imperfect speech under three headings, viz :—

(A) Defects of the Ways in or Receptive Paths.

(B) Defects of the Central Powers.

(C) Defects of the Speech Apparatus.

(A) Defects of the Ways in or Receptive Paths.

Defects of the actual paths conducting the impulses to the brain are not often the cause of speech imperfections; the paths are very important for the development of speech, but even congenital complete deprivation of one sense does not prevent the child from learning to speak intelligently. In such cases by skilled tuition and by special methods the child can be taught to speak in time, and the brain does not ultimately seem to have suffered much from the loss of one set of impressions that should have come to it.

Tactile and muscular sensations convey to the brain impressions of the movements required for speaking or writing and are important therefore in the development of clear and distinct speech, and a child with defective sensation of the tongue

has difficulty in learning the nature of the delicate and skilled movements required of those parts.

Abnormalities of the brain areas that receive and interpret the impulses are, in a comparatively small number of cases, the cause of speech defect.

(B) *Central Defects.*

The chief causes of defective speech in feeble-minded children are defects of attention, will and memory. A child with a wandering attention, misses many sounds altogether, but also hears many others imperfectly, because his thoughts pass on so rapidly that very little effect is made on the brain.

The intelligence has naturally a great effect on the amount and quality of the speech, and mental inertia or laziness may be all that is wrong; but cases vary a good deal and one cannot judge of the mental capacity from speech alone.

The inter-linking and co-operation of the various centres and controlling powers is very intricate. To quote Wyllie: "By means of the various sense impressions a percept of each noun is formed; any hint will call this percept up. Audible speech does this and the wonderful power of association permits the linking of a sound and a percept together, so that the word calls up the whole percept." It can be seen how important is training and development of the perception centres.

(C) *Defects of the Outgoing Paths and Speech Apparatus.*

(1) The motor speech centres in the brain may have been affected by some maldevelopment or disease or injury; while, apart from these conditions, the centres may never commence to act because there are no stimuli from the receptive paths.

(2) The powers of co-ordination play a very important part in the production of intelligible and connected speech. Not only have the three mechanisms to work together in perfect unison, but the parts of each mechanism have also to be co-ordinated. The muscles of the lips, tongue, throat and palate have to perform the most skilled and delicately adapted movements for the production of a single word, and it is surprising that defective speech is not more common. Naturally one of the greatest speech defects due to want of co-ordination is stammering, where the three mechanisms do not act in unison.

The babbling of infants is very important for the development of speech, since it necessitates the use of most of the consonants and vowels and thereby gives constant practice to the mechanisms. It is important to note that one of the early signs of mental deficiency is absence of babbling, and a common cause of speech defects in feeble-minded children is clumsiness of the movements of the mouth, tongue and lips rather than any deformity.

Shortness of the *frænum linguæ* or tongue-tie

very rarely has any effect on the movements of the tongue and certainly is almost negligible as a cause of speech imperfections, though the parents often think that it is the whole cause of delay in the development of speech.

A defective pronunciation of a consonant might be an accurate representation of the imperfect impression received by the brain, but defective interpretation of impressions, though it may contribute to speech failings, is not of great importance in producing them, for if we consider the fact that the deaf child can be taught consonants without the aid of hearing, it is evident that imperfect hearing cannot be very important in causing speech defects.

Conclusions as to the causation of speech defects in feeble-minded children.

(1) Speech defects in feeble-minded children are most often due to defects of the higher mental faculties, such as will, attention and memory, and to inefficient control and education of the muscles moving the speech mechanism in the mouth.

(2) They are not due to actual deformities of the mouth or other organs of articulation, nor to a perverted interpretation of sounds reaching the brain.

NATURE OF DEFECTS.

The following statistics are based on the

examination* of eighty-four feeble-minded children with defective speech. Many more had so improved with tuition at the schools that they showed very few signs of speech troubles, though on admission the speech had been certainly defective. This improvement shows how amenable many of these cases of speech defect are to teaching and training in pronunciation.

In testing the speech, actions, drawings or objects can be used to make the child pronounce the consonant required. This is better than asking the child to repeat the word after hearing it, because, if the latter method is used, it is extraordinary how often one finds that the child does not understand but simply repeats the sound he has heard, so that by imitation he may conceal his defective speech. Pictures and actual things make the child speak in the manner natural to him. General indistinctness of speech is also very common.

The answers of mentally deficient children form a striking contrast to those of children with defective speech but normal intelligence. The former suffer from a paucity of ideas, the deficient play of the association paths and centres making a great difference.

The most striking abnormality of speech found in the feeble-minded is lalling or the substitution of one consonant for another.

*See Appendix 3.

Wyllie in his classical work on Speech divides the consonants into a Physiological Alphabet as follows :—

TABLE IV.

CONSONANTS.

	Voiceless Oral.	Voiced Oral.	Voiced Nasal Resonants.
Labials	{ P	B	M
(1st stop position).	{ (W)	W	—
Labio-Dentals	F	V	—
Linguo-Dentals	{ Th ¹	Th ²	—
	{ S	Z	—
Anterior	{ sh	zh	—
Linguo-Palatals ...	{ T	D	N
(2nd stop position).	{ (L)	L	—
	{ —	R	—
Linguo-Palatals ...	{ K	G	Ng
(3rd stop position).	{ H or Ch.	Y	—
	{ —	(R)	—

Voiceless W and Voiceless L (in brackets) are rare. Former now only Scotland, and latter Wales. Burring (R) also bracketed.

VOWELS.

a—eh—ah—oh—oo (like Latin). Y and W are consonants, but near to I and U respectively.

Defective pronunciation of one or more consonants excluding Th, is found in 32 per cent. of feeble-minded children. T is sometimes substituted for K, and D for G, by children who belong

to the higher grades of the feeble-minded or by ordinary children, and it is such a striking defect that it is always noticed and seems much more common than it really is. Taking the consonants in the order in which they are found to be most often defective we find that, as with normal children, Th is the consonant most often mispronounced, and next to that comes R. The most frequent substitute for R is Y (Yabbit for Rabbit, Yaining for Raining), and, after Y, L or "oo." Several children substituted L, R and Y for one another almost indiscriminately, and this points to the conclusion that they had not sufficient sensation or muscular control to know which of the three they were going to pronounce.

Defects of Y were almost as frequent as those of R, but Y could only be tested as the first letter of a word. It was represented by R and L, or in other cases it was omitted or only pronounced with difficulty.

The fourth in frequency was S. In my cases T was by far the most common substitute for S and after that Ts. S is produced by allowing the air to pass over the dorsum of the tongue, while the tip is near the upper incisors, and should the tip become pressed against the incisors Ts or T is produced; hence their interchangeability.

The three main consonants of the third stop position, K, G and Ng come next. In these

instances we have much more definite and consistent substitutions to deal with. K and G, if defective, are always represented by the corresponding consonants of the second stop position, while Ng is usually represented by some combination of N. Children with defective pronunciation of these consonants were, in every case except one, very bad speakers, showing defective pronunciations of several other consonants as well. Defects of K and G are usually found together, though perhaps G is the more frequently mispronounced.

Defects of Sh are common, T or some combination of T being the usual substitute.

L came ninth on the list.

The labio-dentals F and V are next. They are produced by the lower lip and the upper teeth, and are intermediate between the 1st and 2nd stop position. B is the usual substitute for V at the beginning of a word, and D at the end, B and D being respectively the labial and linguo-palatal voiced equivalents of V.

F was usually represented by T, its linguo-palatal equivalent. Defects of these consonants are the more easily explained when it is pointed out that they are produced between two great stop positions.

The remaining consonants were seldom defective.

The combined consonants are harder to test unless the child can read. Generally the defect can be traced to one of two forming the combination, and in this way a defect in the pronunciation of a consonant may occur only when it is in combination. L and R are very frequently affected in this manner. The substitution of Kw for Tw is explained by the much greater ease with which W follows on K than on T, and in the same way the easiest combinations to pronounce are those which run from the posterior positions to the anterior. The very common substitutes of "likle kekle" for "little kettle" are worthy of mention (50 per cent.), and "ss" in scissors is a frequent stumbling block also. These two peculiarities, though by no means confined to feeble-minded children, are not so often found in children of ordinary intelligence at the same age.

Feeble-minded children often drop the last letters through slovenliness or want of attention or through too rapid speaking. This fault, like the faulty pronunciation of double consonants, is more common in feeble-minded than in ordinary children.

A few careful lessons in the adjustment of the tongue and lips often produce a considerable improvement in the better class of the feeble-minded, but such improvement is too often only temporary, patient and sustained practice being needed to effect any lasting effect, and it is

essentially in will-power that the feeble-minded are lacking. The consonants needing the conjoined action of the dorsum, edges and tip of the tongue for their production are most frequently defective. R, Y, Th, S and Sh are all examples of this class and these are shown by the tables to be the most commonly defective.

The substitution occurring in the second stop position is often almost indiscriminate, and this fact points to a want of co-ordination and control of the united action of the tongue muscles. From R it is a progressive transition to the indefinite "oo," then to Y and finally to the burring or uvular R. The "oo" sound may become W, if the lips are called into play. The labials are produced by simple movements, which can be seen and imitated and consequently they are not often affected.

Stammering only occurred in 2·4 per cent. of the feeble-minded children examined. Stammering is usually produced by inco-ordination of the three mechanisms. For example the respiratory mechanism attempts to expel the air but the vocal cords remain firmly closed, while all the time the oral (mouth) mechanism keeps repeating the movements needed for the pronunciation of the first consonant; an overflow of energy may take place, and take the form of facial contortions or stamping, and finally when the air is released it is often expended in producing the voice for one word only.

The faculty of imitation also helps the development of speech very much.

A lazy or clumsy child is only too likely to lack the precision to speak properly, and, just as some clumsy children improve much more with drill than do others, so some children improve in speaking much more than others. But the teaching has a great deal to do with it, and the methods employed must be adapted to the different children. Dr. Ireland has suggested that speech defects may be like those troubles that affect certain groups of limb muscles in the feeble-minded.

In many instances lalling closely resembles the babyish speech of a young child; still it is a much more definite affection, and ordinary children obtain control of speech at an age when many of the feeble-minded have not tried to say a word.

To sum up.

(1) Lalling or substitution of consonants is a common defect in feeble-minded children, but it is often combined with general indistinctness of speech.

(2) Lalling is an important symptom of feeble-mindedness though it may occur in children of average intelligence.

(3) It is generally due to inefficiency of the

muscles of the oral mechanism, and can be remedied if the child has the intelligence to learn and the will to practise. Amongst the feeble-minded want of attention and want of intelligence contribute largely to the production of lalling, but deficient development of muscular control is the most important cause just as it is the cause of clumsiness of the limbs.

CHAPTER V.

SPECIAL TYPES.

A minority (less than 10 per cent., see Chap. II.) of feeble-minded children belong to one or other of the Special Types, which all present certain peculiarities and characteristics, and are more common amongst the lower grades of mental defect such as idiocy and imbecility.

The following types will be described (1) the Cretin, (2) the Mongol, (3) the Microcephalic, (4) Acquired forms, which are (a) the Paralytic or Cerebral Diplegic and Hemiplegic, (b) the Meningitic, (c) the Hydrocephalic.

(1) CRETINISM.

Cretinism or congenital myxoedema is a condition due to the absence of the thyroid gland; this gland produces a powerful internal secretion, the absence of which gives rise to certain definite symptoms.

It is more common in certain hilly districts, such as Derbyshire, where there are isolated villages, but a certain number of cases arise in all parts of the country.

Characteristics (see Plate VII.).

The cretin is much coarser in every way than the normal child. This coarseness is due to the collection of semi-fluid material just underneath the skin, which gives the child a bloated appearance. The main characteristics are thick coarse features, rough dry skin, a harsh voice, a large clumsy tongue, dry poorly-nourished hair, swellings resembling pads over each collar bone, a protuberant abdomen with a low umbilicus, short square hands and lastly, what is often the most striking feature, great stunting of the body and limbs. As the thyroid gland is wanting, the trachea can usually be felt very clearly. There is usually marked constipation. Mentally a cretin is very listless and heavy, having as a rule greatly diminished power of independent thought or action. The child is in a condition of hebetude or apathy, and if untreated becomes a hopeless imbecile, docile enough but quite unfit to form a useful member of the community. Slighter forms of cretinism are met with, and it is quite possible for illness during infancy or childhood to so affect the thyroid gland as to derange its function and cause mental dullness with stunting. But true feeble-mindedness is not likely to be caused in this way.

Prognosis.

The future of the cretin is not always a bright one even though efficient treatment is commenced

1.



2.



3.



4.

PLATE VII. Cretinism. Figures 1 and 2 show E. S. before treatment in April, 1910. Height 2ft. 11½ins., weight 35lbs. 4ozs., circumference of abdomen 20½ins. Fig. 3 shows the same child in August, 1910, after four months treatment. Height 3ft. 1in., Weight 30lbs. 14ozs., abdomen 19½ins. The mental condition is very much improved. Fig. 4 shows a cretin, who has improved with treatment, but remains feeble-minded

early. Some do wonderfully well and are transformed from gross, ugly creatures to bright intelligent children, but others, though they show a marked reaction to treatment, never get beyond a certain point and are feeble-minded for the rest of their days.

Of course these children are not likely to show the stigmata of degeneration or to have family histories of hereditary taint.

Treatment.

The effect of treatment can be seen in Plate VII. It must necessarily be continued for life and consists of giving doses of extract of sheep's thyroid to take the place of the child's missing thyroid secretion. The remedy can be given as tablets, beginning with small doses of 1 grain and increasing to $2\frac{1}{2}$, 5 or more grains three times daily.

For a fuller account of the condition the reader is referred to text-books of medicine or children's diseases.

(2) MONGOLIAN IMBECILITY.

Dr. Langdon Down first described the type of mentally deficient child known as Mongolian (Plate VIII.). All these children bear a curious featural resemblance to one another, so marked that a Mongol is easily recognised at a distance by a skilled observer. The features are like those of the Mongolian race, the main characteristics

being the obliquity of the eyes and eyebrows and the depressed bridge of the nose. Anyone dealing with large numbers of patients at a Children's Hospital will see quite a number of Mongols, but since many of them die in infancy they are not common amongst older children.

Causation.

Mongolism, though a very definite type, is probably a failure of development like the other forms of primary feeble-mindedness, for examination of the brain shows irregularity and incompleteness of formation.

The condition seems to be in many cases the result of an exhaustion of the reproductive powers of one or other of the parents. A few cases are met with where the patients are young and strong (see footnote), but by far the majority of the cases are the last of a large family, the parents having reached the age of 40 or thereabouts.

The list of family histories and ages of parents collected from various sources and given below,*

* Of 52 Mongols that have come under my own observation in Manchester, 35 were the last children of their respective families and 13 the last but one. Four were the first children; all the four parents of two of these four were over forty years of age and of the four parents of the other two, three were twenty-eight and one twenty-six.

In 123 families, each containing a Mongol, there were in all 734 children, giving an average of 6 to each family. Of these 734 children only one was

shows how frequently the Mongol is the last child of a large family, and how often the parents are of advanced age; it also points very strongly to the fact that the Mongolian type of mental deficiency is due to an exhaustion of the reproductive powers of one or other or both of the parents. There is no evidence to show either that syphilis in the parents, or that dissimilarity in the age of the parents, have any effect in causing this form of mental deficiency.

feeble-minded apart from the Mongols. It is very rare indeed to find another mentally defective child in a family that contains a Mongol, the case quoted above being the only instance known to me.

Of 325 cases collected from medical literature, 189 were the last children in their respective families, and 44 the first. Of 121 Mongols 14 were the first born, 13 second, 39 third, fourth and fifth, 30 sixth, seventh and eighth, and 25 ninth to fourteenth. The Earlswood tables show that 22 per cent. belong to the first half and 78 per cent. to the latter half of the families.

Of 27 mothers and 19 fathers of Mongols 77 per cent. and 68 per cent. respectively were between the ages of thirty-seven and forty-four and some were over the age of forty-four.

In all the cases except one where there was a reliable family history, it was negative for any neuropathic taint, and as stated above in one case only was there another mentally deficient child in a family containing a Mongol—facts which throw some doubt on the likelihood of this form of mental deficiency being due to an inherited taint.

Pathology.

As Dr. Shuttleworth has suggested, the various deformities point to a generally unfinished state, the poorly developed ears, the lax ligaments and hypotonia of the muscles, the not uncommonly incomplete condition of the heart and brain all indicating a state of unfinished development. The brains of Mongols seem to differ considerably, the convolutions being usually primitive and much more simple than is normal; some show gross signs of arrested development or of smallness or simplicity of certain parts, others show marked changes in the cerebral cortex, while others again show few definite abnormalities.* Probably the deformities tend to be greater or less with the greater or less degree of Mongolism.

Deformity of the skull exists because the brain is small and does not develop normally, and just as the bones of the skull of the microcephalic close early because the brain is so small, so premature closure of the bones of the base of the

*I have examined the brains of four Mongols and found that three of them showed simplicity of the convolutions and a rounded appearance. The fourth (that of a Mongol of marked degree, who died in infancy) showed gross abnormalities and primitive type of the convolutions of the cerebrum and smallness and underdevelopment of the cerebellum.

One of these cases died of general tuberculosis and had tuberculous meningitis.



PLATE VIII. Feeble-minded Children of the Mongolian Type.

cranium, if present, is due to imperfect development of the brain and not to primary deformity.

In many Mongols the thyroid gland is smaller than normal, but the pituitary body seems to be unchanged. The majority of cases do not show any changes of the ductless glands, and there is nothing pathological to indicate that Mongolism is anything but a failure of development.

Characteristics—Physical and Mental.

(See Plate VIII.)

The physical characteristics are numerous. There is the peculiar obliquity of the orbits, already described, and this, combined with the depressed bridge of the nose, a deformity said to be due to premature joining of the bones at the base of the skull, gives to the face of the Mongol its characteristic appearance. Protrusion and sucking of the tongue is very noticeable in some Mongols, especially in infants. Epicanthic folds are often present. The heads are small and round, being deficient behind, so that the skull ascends very steeply from the back of the neck. A typical Mongol seems to have an underdevelopment of the bones in the region of the nose and upper jaw, so that the face has a pinched-up appearance and the lower jaw appears to be too big and to protrude laterally. The ears are generally small and crumpled, the upper part of the pinna overhanging and protruding while the hair is thin and sparse but may

be normal. The cheeks of those who survive infancy are often rosy and plump, the outline of the lower jaw being rounded; this gives the child a look of robust health. On the other hand many Mongol infants are pale, thin and wasted and do not survive long. The skin is coarse and a growth of downy hair is often present on various parts of the body in older cases. The hands are square with short fingers, the little finger being incurved, and the feet are also square; the joints and muscles are sometimes very loose, permitting of unusual attitudes: furrows are very numerous on the palms of the hands and on the tongue, those on the tongue being in later life often extraordinarily well marked: the palate may be high or V-shaped; the eyes are often defective, and many Mongols are brought at first to an Eye Hospital since, in addition to the obliquity of the palpebral fissure, the tendency to eye-rolling is sometimes very noticeable: squint or nystagmus may occur too, and in many cases (62 per cent.) congenital cataract is present. (Ormond.)

Congenital heart deformity is quite common in Mongols, and they should always be examined for bruits or enlargement of the cardiac dullness. Dr. Still states that congenital heart disease is found in 5 per cent. of Mongols. Mongols show a lowered resistance to cold, many of them having cold extremities, which become blue on exposure, a phenomenon that may be quite independent of heart trouble. This general lowered resistance

renders Mongols liable to infection, to tuberculosis, to pneumonia and to bad effects from operations.

Mongols also tend to be much below the average in height and weight. A Mongol of 8 or 9 years often resembles a normal child of four or five in appearance. This characteristic is also noticeable in infant Mongols, especially in those who do badly, for they remain much under the average weight and length. The small weight might be due to wasting, but the failure to grow in length is a developmental defect. One of my cases, aged 1 year and 2 months, resembled in length, weight and appearance a poorly nourished baby of three months. The genital organs have been undersized in many of the Mongol boys I have seen.

The mental characteristics do not differ greatly from those of the ordinary feeble-minded child. Mongols are more difficult to teach. They have very good powers of mimicry and will imitate animals or sometimes persons very closely, being in this way often very amusing to the other children. They are usually fairly happy and contented, but many of them are of low grade and not very many are found suitable for treatment as feeble-minded, being more often of the imbecile class. Another curious point is that they are very fond of music, more so than are other children.

Prognosis.

The prognosis is not good. Quite a large number die in infancy, being classed as wasting babies and thus escaping recognition as Mongols. Those who live to a later age and survive the wasting or malnutrition stage, show a weakened resisting power to disease and therefore succumb readily. Pearce and Rankine, judging from 50 cases, give the average age at death as $14\frac{1}{2}$ years.

Tuberculosis, occurring most commonly in its pulmonary or miliary forms, is responsible for the death of a very large proportion of cases. Broncho-pneumonia also may easily be fatal. Probably the largest proportion of Mongols die in infancy or very early childhood of malnutrition and atrophy. If congenital heart trouble is present, the child has a still weaker hold on life.

Apart from physical infirmities, the prognosis is not good. The mental condition improves very little and although these children are often happy and look bright, their mental level is frequently that of an imbecile and may be lower still. There are slighter cases with very little defect, but the majority are low grade.

Treatment.

Occasionally a combination of Mongolism and Cretinism occurs, and in such cases treatment with thyroid extract improves the child mentally and physically to a certain point. There are no

special measures for improving Mongols, but every effort should be made to give them some occupation that interests them even if it is of the simplest kind. The eyes should always be examined and defective vision corrected by spectacles.

(3) MICROCEPHALY.

In this form of mental deficiency, the brain is very small, so that the sutures and fontanelles of the skull close early and the circumference of the skull is a good deal smaller than it should be. Smallness of the head, within certain limits, does not necessarily mean less intellect, many children with small heads being very clever; but in microcephaly the head is extraordinarily small.

The normal head should be at least well over nineteen inches in circumference in a school child. The following are actual measurements from cases of microcephaly at various ages:—

At 3 months 12 inches; at 3 years 15 inches; at 9 years $15\frac{3}{4}$ inches.

Causation.

Unlike Mongolism, Microcephaly often affects several children in one family, sometimes affecting all the children. In some instances one or other of the parents has had a very small head, in others there is a definite history of descent from a feeble-minded individual.

Murdoch records a case in which a family of

five microcephalic children was the progeny of two of the descendants of a feeble-minded woman. This woman had had four feeble-minded girls, all of whom had had feeble-minded children. The descendants of the original feeble-minded woman included more than 100 feeble-minded persons, amongst whom was the family of five microcephalics. The father of these was feeble-minded but not microcephalic.

The following are notes on the history of a family containing microcephalics, some of which have been under my observation in Manchester :

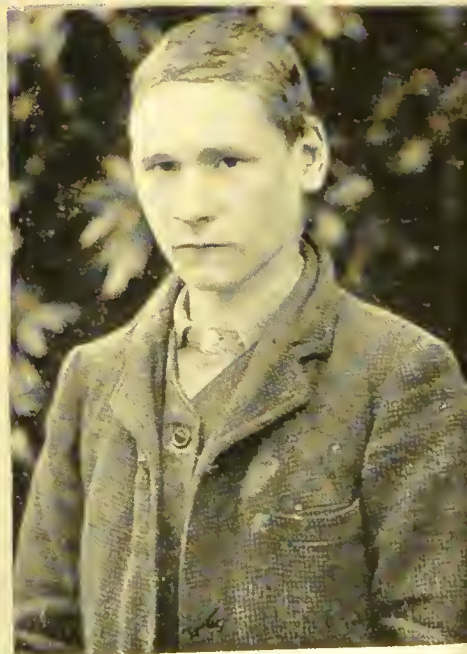
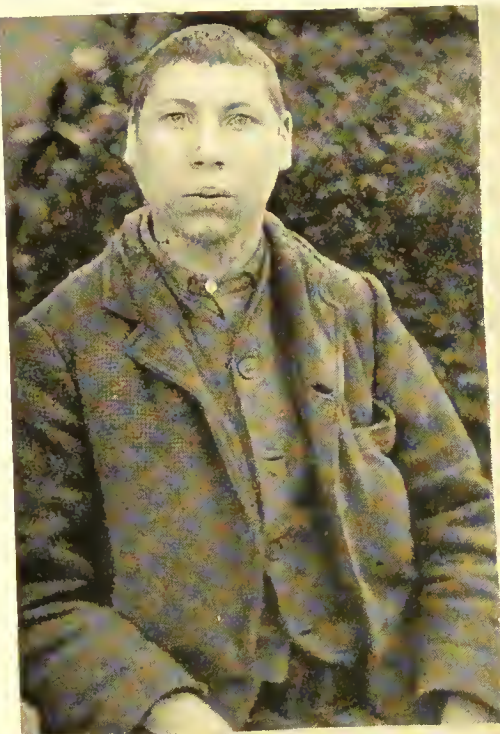
Father and mother of good mental powers and aged 35 and 34 respectively: both temperate: Children 8 in number: (1) Boy, alive, aged 12, good mental powers; in Std. V. (2) Boy, alive, aged 10, Microcephalic in Royal Albert Asylum, Lancaster. (3) Girl, alive, aged 8, fair mental powers; in Std. II. (4) Boy, alive, aged 6, Microcephalic. (5) Boy, stillborn, Microcephalic. (6) Boy, died, aged 3 months, Microcephalic. (7) Girl, died, aged 8 months, Microcephalic. (8) Girl, alive, aged 6 months, Microcephalic. After careful enquiry it was found that there was no history of Insanity, Fits, Mental Deficiency, Tuberculosis or Intemperance either in the parents and their brothers and sisters or in the grandparents.

It is noticeable that out of the eight children born to these parents six were microcephalics.

Thirty-three per cent. of my cases showed a family history of mental trouble.

1.

2.



3.

4.

PLATE IX. Microcephalic (Figs. 1 and 2), Hydrocephalic (Fig. 3) and Morally Defective (Fig. 4) Types.

Pathology.

The brain is much smaller than the average, and shows simplicity of convolutions; beyond this there is nothing especially characteristic of the microcephalic brains, though some of them show major defects such as extreme smallness of the cerebellum. The skull closes early because the brain is so small; consequently the child usually has a narrow receding forehead and a more or less pointed skull cap.

The face, body and limbs are usually well developed, and, except that, in the more extreme cases, there is often spasticity and stiffness of the limbs, a microcephalic child shows little physical deformity other than that of the head.

Characteristics (see Plate IX, Figs. 1 and 2).

The appearance of these children is very characteristic, the skull being so small and so obviously out of proportion to the face that there is little difficulty in recognising the condition. In consequence of the small size of the skull there is usually a history of rapid termination of labour at the birth of the child. Some of the children suffer from convulsions, others show the spasticity or stiffness of the limbs referred to above, this stiffness being most common in the lower limbs. Constipation is often a troublesome feature. Both the spasticity and the constipation are probably due to defective nervous control

from under-development of the upper motor neurones.

Though often amiable and bright, microcephalics are subject to violent and passionate outbreaks during which they may do damage. Some cases are very restless and quick in their movements, showing a curious resemblance to a bird. Like other mentally defective children they are late in learning to walk and talk, and many of them never learn to talk at all but make inarticulate sounds of pleasure or pain.

The cases that come under the classification of feeble-minded are the best of the microcephalics. From this reason the characteristics seen in the more marked cases, such as stiffness of the limbs and inability to talk, are not present in cases seen in special schools or colonies.

Prognosis.

The prognosis as regards life is good, but the microcephalic feeble-minded are usually of low grade and, though often imitative, difficult to teach.

Treatment.

Treatment directed to curing the condition is of no avail. At one time the operation of craniectomy or of opening and raising the skull bones with the idea of giving the brain room to develop was tried in a number of cases but quite unsuccessfully, and to argue that the brain does not develop because the skull is too small is to put the cart before the horse. What really

happens is that the brain is abnormally small from the first so that the skull does not attain the right dimensions. Of course by treatment, training and teaching a fair amount can be done to develop the mental powers, but there is no operation or surgical measure that can affect in any way a brain which is small because of the failure of the formative processes that go on while the child is still in utero.

(4) ACQUIRED FORMS.

Acquired forms are due to causes acting during intra-uterine life or early childhood on a brain that apart from these causes would have developed normally. Nearly all these cases can be classed as being due to inflammatory lesions.

The several acquired forms of feeble-mindedness are (a) the Paralytic (Cerebral Diplegic and Hemiplegic), (b) Meningitic and (c) the Hydrocephalic.

(a) PARALYTIC (Cerebral Diplegia and Hemiplegia).

In Diplegic cases all the limbs or both legs may be affected: in Hemiplegic cases only one side of the body is deformed.

In Paralytic cases there has been some destruction of part of the upper motor neurones or of the conducting paths of the brain during intra-uterine life or at birth, either by hæmorrhage or by other conditions such as injury or inflammation. In some there is a severe lesion

during intra-uterine life, so severe that the child would not have survived if it had been living a separate existence at the time the lesion occurred : in others the destructive process is not so severe, and may occur at birth without causing the death of the child ; in others again there is no definite evidence of a destructive lesion but only poor development of the nerve cells of the upper motor neurones (Shaw). Whatever the nature of the pathological lesion the effect is much the same, because the nerve cells or the nerve processes of the upper motor neurones are rendered defective to a greater or less extent, and a stiff or spastic paralysis with accompanying mental deficiency is the result.

Causation.

There is often a history of difficult birth in these cases. Obstruction to the birth of the child causes prolongation of labour, which may give rise to effusion of blood on to the brain, since the blood vessels of the child's brain are unable to resist the strain of continuous congestion and pressure. This shows how valuable is the use of instruments when labour is unduly prolonged. Again there may be a history of injury to mother and child during pregnancy or of severe illness of the mother.

Characteristics (see Plate X.).

A typical case of Diplegia of moderate severity shows stiffness and rigidity of the limbs, the legs



1.



2.



3.

PLATE X. Feeble-minded Children of the Paralytic (Hemiplegic) Type. Fig 1 shows the small size of the affected limb in four cases of Hemiplegia. Figs. 2 and 3 show athetoid, involuntary movements in the affected arm of the case on the left of the group in Fig. 1.

being most commonly affected; both sides are equally bad and the reflexes are increased. The condition is a typical spastic paralysis of greater or less degree. This stiffness leads to considerable awkwardness and limitation of movement, and in some of the worst cases of cerebral diplegia there is even spasm of the back muscles, causing arching of the spine. Speech may be affected and both walking and speech are late in developing.

Mentally cerebral diplegics may be fairly good compared to other feeble-minded children, and though they are often very excitable and emotional as in Case I. (J. D.), they may be comparatively intelligent and capable of learning and mental development. However, they are usually at least feeble-minded, and are dependent on other persons on account of both their mental and physical infirmities.

Cases of microcephaly may show a similar stiffness, but the smallness of the head serves to distinguish the two conditions; moreover the microcephalic with spasticity exhibits much poorer mental power than a feeble-minded cerebral diplegic.

Paralytic cases show a great tendency to slaver and there may be a constant stream running down the child's chin and wetting his clothing.

In Hemiplegia only one side of the body is affected. The arm and leg are usually paralysed together, but the face may also show evidences

of one-sided paralysis. The affected limbs are stiff and much weaker than those of the other side and are generally smaller also, as they have not grown at the same rate. This characteristic can be seen in Plate X, which also shows the curious involuntary twistings and contortions of the affected parts, known as athetosis.

In both diplegia and hemiplegia there is a tendency to the development of contractures of the muscles on the flexor surface of the limbs, which may be fixed in a bent position in consequence.

Deformities of the head corresponding to the site of the lesion occur. Thus a child with hemiplegia of the right arm and leg may have smallness of the left side of the head.*

Treatment.

There is no specific treatment, either operative or medicinal, for this condition. Some of them improve a little under potassium iodide and mercury.

Regular massage and drill that aims at educating the nerve paths to the muscles and the nerve centres from which impulses arise, is of considerable value, and since these cases may possess patience and will-power much in advance of the ordinary feeble-minded child, they may learn to

* The left half of the brain controls the right side of the body.

do work needing fine adjustment and skilled movement.

Case I. J. D., æt. 4 years. Cerebral Diplegia. Cannot walk or talk, though attempts a few words; always slobbering; obstinate constipation; head 20 in. in circumference; difficult birth, prolonged and instrumental; child had convulsions at birth; legs spastic and weak; reflexes increased. Under regular massage and exercises designed to educate muscular control the child is improving and can now walk across the room but tends to get excited and hurry, when he falls. His mental condition is improving with training but he will always be dependent on others.

Case II. H. W., æt. 7 years. Hemiplegia left side. Can walk unsteadily, the left leg dragging at times and the left arm being bent at the elbow and not under control; saliva always running from his mouth; head $18\frac{1}{2}$ in. in circumference; paralysis present from birth; left arm and leg weaker and thinner than right; left hand contracted and fingers bent inwards; mentally very vacant and poor.

(b) MENINGITIC.

Inflammatory conditions such as meningitis may cause either (1) retarded mental development by sense deprivation which gives rise to deafness or blindness or a combination of the two, or (2) mental deficiency by the effects that the inflammation has produced on the brain. In the sense-deprivation cases there is not real mental deficiency, and these cases can develop mentally as soon as the receptive paths to the brain centres are opened. Proof of this can be found at the

schools for the deaf and blind and in the example of Miss Helen Keller, who, though deaf and blind from very early infancy, is now the author of two well-known books and whose intelligence is of a high order.

But when the inflammatory changes actually affect the brain and cause sclerosis or scar formation, there may be real and permanent mental deficiency. These inflammations may occur (1) during intra-uterine life, as is shown by pathological evidence, (2) during infancy and childhood from either postbasic meningitis due to the diplococcus intracellularis or to pneumococcal meningitis, and (3) may follow some of the acute infectious fevers such as scarlet fever or measles. On the whole meningitis is not a common cause of mental deficiency, though some alienists hold that intra-uterine meningitis is responsible for a good many cases.

(c) HYDROCEPHALIC.

This is the condition commonly known as "water on the brain." The brain is a hollow organ, the cavities in each hemisphere being known as ventricles. The fluid in hydrocephalus may be (1) in these ventricles, in which case it distends them and compresses the brain; (2) between the skull and the brain, in which case it presses on the brain; and (3) both inside the ventricles and between the brain and skull.

The pressure of this fluid on the brain may

ultimately cause feebleness of intellect if the child survives, but hydrocephalic cases are not at all common in the feeble-minded; they are seen more often as hospital patients. Congenital hydrocephalus does occur but the child is not necessarily weak-minded. There is little difficulty in recognising hydrocephalus (see Plate IX), for the head is very large, being often 25-27 inches in circumference, and the skin may be so tightly stretched in a marked case that the upper parts of the whites of the eyes are visible, while the pupil is hidden by the lower eyelid. A word of warning should be given against mistaking the large bossy square head of rickets for hydrocephalus. The congenital condition known as spina bifida may be followed by hydrocephalus. If the child survives, it may be paralysed and mentally defective, but these cases again fall more naturally into the province of hospital treatment.

Treatment.

The medical treatment of these forms of feeble-mindedness, when there is real brain mischief, is of little value. The children remain permanently of feeble intellect, though they can be taught a fair amount. Potassium iodide is the only drug that may be beneficial, but the meningitis is usually old standing and is not likely to react to medicine.

In the cases of sense-deprivation there should

be great improvement with medical treatment and proper methods of teaching, the condition being merely backwardness due to want of stimulus.

In other cases where there is mental deficiency as well as deafness or blindness the child may appear much worse than he really is because he is both backward and feeble-minded; it follows that some cases improve beyond expectation.

ATELIOSIS, or continued youth, a type to which Tom Thumb belonged, and PROGERIA, or premature old age, are too rare to merit a special description here. There is one case of Progeria at Sandlebridge, the boy being also feeble-minded.

Amongst my hospital cases there are records of one case of JUVENILE GENERAL PARALYSIS, but this is a progressive disease and does not concern us here.

MORAL DEFECTIVES are described in Chapter III. since their characteristics are mental rather than physical.

Finally let it once more be emphasised that only a small minority of feeble-minded children belong to the special types.

CHAPTER VI.

DIAGNOSIS.

In making a diagnosis of the mental condition of the child brought up for admission to a special school or institution for the feeble-minded, the doctor has first to decide whether the child is below the normal mental level, and, if this is so, he has to place the child in one of three classes; (1) Dull or backward, (2) Feeble-minded, (3) Idiot or Imbecile. A certain number of "border-line" cases have to be admitted and watched before a definite diagnosis can be made.

Imbecility has already been defined, and the term Backward Children includes two main classes: (1) Intelligent children, who for some reason are not up to the average standard of knowledge: usually either because they have come to school late or because they have some physical defect such as deafness or short-sight that renders them unable to reap the same benefits from teaching as do the other children. These cases are in low standards because they cannot have individual teaching.

(2) Dull children, in whom the mental dullness is due to physical causes such as disease, epilepsy, or bad environment, the effect of which is to

impair the activity of the brain. These children are in low standards because they need treatment directed to improving the nutrition and tone of the body and brain or the removal of dulling factors such as epilepsy.

Of the children admitted those dull or backward may improve with individual and special treatment and can then be discharged; and those of the lowest grade may be found to be too bad for treatment and sent to other places for care.

In this chapter we shall discuss the points that help us to choose cases suitable for treatment and training as feeble-minded.

It is very important to take exact records of each case at the time of examination and to continue these while the child is under observation. Such records must be full and definite to be of any value. Histories or notes that leave any doubt are practically useless, and only information that comes from a reliable source should be accepted. For instance many mothers will give a history of convulsions in several of their children, but a more careful questioning will show that the fits have only been terminal events in some other illness or that they have not been real; others describe as "inward convulsions" what were probably griping pains and not fits at all. In the same way histories of consumption or alcoholism must be verified before they can be used for statistical purposes. It must not be thought that these warnings are meant to deter

anyone from taking records. On the contrary, reliable records are urgently needed and are most valuable for scientific research and progress in this subject; but it cannot be too emphatically pointed out that the utmost care must be exercised.

The following apparatus is necessary :—(a) A measure marked in inches and centimetres and made of tape, not of wire or steel; (b) A machine for measuring heights and weights; (c) Case sheets and boxes for filing; (d) A stethoscope; (e) a simple tongue depressor which should stand in a bowl of antiseptic lotion, or a few firm strips of wood, a fresh strip being used for each child; (f) a good firm table on which are a number of (g) coloured wools or papers, the colours represented being *definite* shades of red, blue, black, white, yellow and green. It is a good thing to have three or more samples of each colour so that the child can be asked to match them if he does not know their names, and each sample of each colour must be of the same shade; (h) counting beads, various small toys or models of animals and some bricks or slabs of wood in sufficient number for them to be used for addition and subtraction; (i) a pencil and paper for the child to write on, and various small objects or drawings useful for testing the child's knowledge and powers of speech. Great care must be taken to choose drawings or models that really give a good idea of what they are meant to represent, and allowances must be made for the fact that

the child may not have seen many things or animals that are quite common in the experience of other children; (j) a school primer, and some sheets containing large letters and simple drawings of animals; the latter are valuable for testing the child's sight, the ordinary test type not being of much use because many of the children do not know their letters.

With this apparatus there should be no difficulty in gaining an accurate knowledge of the child's powers of addition, subtraction, writing, reading and speech, and at the same time of forming a fairly correct estimate of his mental capacity.

One or two other points are important.

In the first place each case must be examined separately; nothing can be more detrimental to a successful examination than to have several sets of relatives and children looking on.

The room should be cheerful, well-lighted and warm. Objects, such as a metal inch measure, that may frighten or upset the child, should not be used. It must be remembered that it is a considerable ordeal for a child to be brought into a strange room and to be confronted with three or four serious-looking people. Though some feeble-minded children are too dull and heavy to mind this, the majority are by no means so constituted, and unless the doctor can gain their confidence he will not be able to get satisfactory results from his examination. A little time has

to be spent over taking the history from the parents and during this time the child should be allowed to move about apparently unnoticed and can be quietly watched. The doctor should then ask him the names of simple objects or let him match the bricks. Once his confidence has been gained it is a more easy matter to find out the capacity for writing or reading or attempting sums. The measurement of the head and the inspection for physical stigmata, the examination of the heart and lungs and finally that of the throat and nose can now be made. It is better to reserve until the end those examinations which cause most discomfort or are most likely to upset the child. These details may seem trifling but they are none the less important and have a good deal to do with the success or failure of the examination.

The following points should be recorded on a case sheet such as that shown in Appendix IV.

- (1) The family history.
- (2) The health of the mother during pregnancy.
- (3) The personal history of the child, including troubles at birth and illnesses and *the opportunities for mental development*.
- (4) The age at which the child began to sit up, walk, talk and to learn to control the bladder and bowels.
- (5) The circumference of the head, the presence or absence of physical stigmata, and whether the child belongs to any one of the special types.

(6) The height and weight.

(7) The speech.

(8) The sight.

(9) The hearing.

(10) The carriage, gait and ability to join in games.

(11) The general appearance, bearing and expression.

(12) The memory, attention, will and temperament.

(13) The powers of reading, writing, calculation, and manual skill, and the Standard in which the child is at the time.

From a consideration of these points one can usually come to a conclusion as to whether a child is feeble-minded and suitable for admission to a special school or institution or not. A certain number of cases have to be admitted on probation, but these should not form more than a very small proportion of all cases.

Most of the headings enumerated above have been or will be considered in other chapters, but a brief summary of the important points connected with each will be of advantage.

(1) A *family history* of insanity, epilepsy or mental deficiency strengthens the possibility of the child's being feeble-minded; histories of tuberculosis, alcoholism or syphilis are not so important, though in my experience tuberculosis is often a marked feature of the family histories of these children. A family history of deaf-mutism

should be recorded. Near relationship of parents and the place of each parent in their family should be noted.

(2) The health, bodily and mental, of the *mother during pregnancy* should be noted, because a history of physical illness or mental stress is often found. A history of mental trouble may point to weak mental powers in the mother. Though such conditions do not of themselves cause feeble-mindedness, and though it is doubtful whether they have much contributory effect, still it cannot be denied that ill-health of the mother during the period of development and growth of the foetus, which is dependent on her blood for nourishment, may have some contributory effect in causing abnormal development. Hence the importance of obtaining as much reliable evidence as possible on the point.

(3) The *personal history* of the child may show some illness or accident, which has acted as a determining factor in producing what we have called secondary feeble-mindedness. In the same way injuries caused by prolonged pressure and congestion of the head at birth may have a similar effect. It is not uncommon to obtain a history of difficulties at birth or of injury or illness acting later, but too much importance must not be attached to these factors because parents are very prone to attribute their child's failings to some such cause and for this reason they often discover and exaggerate some trivial

illness or accident. Actually about 10 per cent. of cases of feeble-mindedness are due to such secondary causes.

It is most important to find out what *opportunities for mental development* the child has had. Physical illness may have kept him from school or some defect such as stammering, deafness, shyness or nervousness may have prevented his making full use of his opportunities and have produced a state of backwardness or retarded mental development. On the other hand if a child has not improved under careful and individual teaching, the future mental development is not likely to be good.

(4) *The age at which the child began to sit up, to walk, to talk and to develop control over the bladder and bowels* should always be ascertained. They are very valuable points. Feeble-minded children begin to walk and talk much later than ordinary children, speech being more delayed than walking. An ordinary child should sit up at the age of nine months at least, and should commence to walk and talk at nine to fifteen months. Control of the bladder and bowels should develop during the 2nd year in a well-trained child, but it is very late in developing in the mentally defective partly because the child learns everything with difficulty and possibly because sensation is defective. Other conditions such as illness or disease may be the cause of delayed development of bodily and mental con-

trol but, if such conditions can be excluded, the above defects are very suggestive.

(5) The *physical characteristics and general configuration* of the child should be examined. It is often possible for a practised observer to tell at a glance that the child is mentally deficient. There should be little difficulty in recognising definite examples of any of the special types described in Chapter V., but some of the less definite examples are not easy to classify.

The circumference of the head is a very valuable sign, and the absence or presence of other physical stigmata of degeneration should be noted. We have seen that the feebleminded show the physical stigmata of degeneration more often than do children of normal intelligence, while very often a combination of two or more stigmata is found to occur in the same child; but it must be distinctly understood that such stigmata are not in themselves evidence of mental instability. Their presence simply points to the inheritance of what is known as the neuropathic diathesis.

The most important stigmata of degeneration are (a) Asymmetry and other deformities of the head; (b) Epicanthic folds at the inner angle of the eye; (c) Abnormalities in the shape of the external ear; (d) Abnormalities of the palate and dental arch; (e) An incurving of the terminal joint of the little finger. Many of these children

also have a coarse skin and are liable to acne and other skin eruptions.

(6) Comparisons of the *heights and weights* of feeble-minded children with those of ordinary school-children show that the former are smaller and less well-developed physically. This is partly due to the fact that they do not have the same opportunities for exercise and play, but is chiefly an innate defect. The difference is too marked to warrant the conclusion that want of exercise is the only cause; and moreover the difference increases with age.

(7) Defective *speech* is very common and may be due to various causes referred either to the central powers in the brain or to poor control over the muscles or to defective sensation of the mouth and tongue. Lalling or substitution of easy consonants for hard ones is the most striking defect.

(8) The *sight* must be tested to see whether there is any major defect that might possibly account for delayed development of the mental faculties. Backwardness may be due to marked degrees of defective sight, in which case the child will soon improve with treatment; but backward children are not feeble-minded. Defective eyesight may, however, enhance the original dullness of a feeble-minded child, so that allowance should always be made for it, if it is present.

Inability to name colours is often found but actual colour-blindness is rare, and the majority

of children can pick out and match similar colours.

(9) The *hearing* powers must be carefully tested. This is not so easy as might be thought because want of attention or stupidity may simulate deafness very closely. However a child with a want of attention so great as to simulate marked deafness is usually of too low a grade to be classed as feeble-minded. Gestures and signs must be avoided. A deaf child is certainly very dull and heavy, and in some ways may resemble a feeble-minded child very closely, but, with care, it is generally possible to make a correct distinction between the two.

(10) Defects of the *general balance and carriage*, a shuffling gait, slouching and clumsiness are very common, being due to under-development of muscular control and lack of mental and physical tone.

(11) The *general appearance, bearing and expression* are of considerable help and, as previously stated, it is often possible to tell at a glance that the child is feeble-minded. The expression on the face, the little mannerisms, the lack of featural and muscular control and the general aspect of feeble-minded children cannot be defined exactly, but to a practical observer there is something very characteristic about these points. Of course such children differ enormously, some being heavy and dull, others apparently quite bright; but a few minutes spent in quietly watch-

ing the child, while he moves about and handles things, will not be time wasted.

(12) Perhaps the best simple test of the *memory* is found in the ability of the child to go errands. Questions may be asked about his meals or if he remembers how he came to the school and what he has noticed on the way. These are quite valuable points and will give much information about the mental capacity. Some feeble-minded children can say poetry or songs, but too often this is a mere parrot-like repetition. The power of *attention* is very important for the child's future mental development and must be carefully noted. The powers of *association* can be simply and rapidly tested by asking the child questions about pictures, and in this connection it is necessary to find out what opportunities the child has had for mental development. Individual and skilled treatment makes such a great difference that this is a very important point both for diagnosis and prognosis. Another point that is of great value is whether the child is aware of his own shortcomings or not. A feeble-minded child does not as a rule know that he is below the average, and is quite content to remain with other feeble-minded children. If the child commences to babble and talk aimlessly about himself or about anything that may come under his attention, he is often a bad case.

(13) *Standard at School.* Children generally pass out of the infant school at the age of six

years and go up one standard with each subsequent year, therefore a child should be in the First Standard at 6-7 years, the Second at 7-8, the Third at 8-9, the Fourth at 9-10, the Fifth at 10-11 and so on. The bulk of those suitable for a Special School are found in Standard II, having been moved up on account of age. Although other conditions, such as health, have an effect on the progress made by the child at school, the information given by the teachers who have had charge of the child is of very great value. Some of the better class of the feeble-minded are capable of making a fair amount of progress. The method of reading and writing may help to show the character and capacity for sustained effort. Thus if a child, on being asked to write a word, scribbles aimlessly instead of trying to spell the word, the prognosis is worse than if he stops and admits that he cannot do it.

Sums, except those of simple addition, are usually beyond those who come up for examination, though a few may be able to do more in this respect. Feeble-minded children do much better with concrete objects like beads and bricks, but even then their powers of calculation are very small as compared with those of ordinary children.

DIFFERENTIAL DIAGNOSIS OF FEEBLEMINDEDNESS AND BACKWARDNESS.

As previously stated it is by no means easy to differentiate some cases of dull and backward

children from feeble-minded children, and the following two cases are quoted to illustrate typical examples of each condition.

Case of Feeble-mindedness :—

A. O., aged 9 years, poor health, cough, easily tired; vacant expression; head circumference $20\frac{1}{2}$ in.; no deformities; sight and hearing fair; highly arched palate, ears normal; memory, attention and control poor; mischievous; counts to 20 and can do very simple addition but no more; cannot read but knows letters; can write cat but only makes a meaningless scrawl in place of his name; speech defective; habits somewhat dirty; can dress himself. Family history shows that the mother's father died of tuberculosis and that a twin brother of the mother is mentally defective.

The following is a typical case of Backwardness :—

A. F., aged 8 years; marked rickety deformities of the limbs and stunting; aspect and bearing bright; head circumference $20\frac{1}{2}$ in.; sight and hearing good; no physical stigmata; memory, attention, control and sense of right and wrong good; slow at figures, counts up to twelve, but cannot do abstract calculations, not even the simplest addition of figures; cannot read or write; speech and habits good; can help to dress himself; has not been to school on account of weakness of legs; family history negative.

These two cases illustrate several points in the differential diagnosis of the two conditions very well.

(1) The family history was positive in the feeble-minded child and negative in the backward child.

(2) The opportunities for mental development had been poor in the case of the backward child and fairly good in the case of the feeble-minded.

(3) The general appearance, memory and attention were much better in the backward child: also the feeble-minded child was mischievous at times and was not of very clean habits: the backward child, who had been physically incapacitated, had not learnt to dress himself for that reason.

(4) The feeble-minded child spoke badly.

(5) The backward child had never learnt his letters or figures, and in consequence could not make any attempt at reading, writing or calculation, while the feeble-minded child, who had had opportunities, could make some attempt at addition and writing but was far behind the average child, and also did not fully appreciate or admit this fact but wrote a meaningless scrawl for his name.

MENTAL DEFICIENCY IN THE EARLY YEARS OF LIFE.

We shall very briefly discuss here the signs of mental deficiency in early life before the school-age because it is important that such cases should be recognised and trained as early as possible. As a rule the diagnosis of feeble-mindedness is not made during the early years of life unless the

child belongs to one of the special types, and it must be remembered that these types form a small minority only. In the greater degrees of mental deficiency, idiocy and imbecility, there are often signs that excite the alarm of the parents and make them consult a doctor; but the symptoms of feeble-mindedness are less marked and are not often noticed till after the first few years.

Inability to sit up, lateness in learning to walk and talk may excite the alarm of the parents but are put down to mere backwardness. Nor is it easy for a medical man skilled in the examination of these cases to give a definite opinion in the early cases. Deafness and blindness must be excluded, but a good deal of importance is to be attached to the response to external stimuli and to the vigour and expression of the infant. Feeble-minded infants neither notice things nor attempt to play, grasp or babble in the same way as do ordinary infants. They may either lie quite still and never complain or they may make ugly, fatuous sounds, constantly repeat some useless movement, cry out continuously without cause, and bang their heads about. The presence of many of the stigmata of degeneration, a family history of mental affection, small circumference of the head, and poor development of control over the bladder, bowels and muscular system are also suggestive points.

It must be remembered that delayed development of function may be due to conditions such

as wasting, rickets, and other diseases, so that it is not always easy to give a diagnosis.

Cases illustrating such conditions are :—

(1) F. P., æt. 1 year; cannot sit up; head 18 in. On examination the back muscles are found to be abnormally weak and since the child smiles and crows, can shake hands and has already developed some control over the bladder, it is quite evident that the inability to sit up is due to some weakness of the muscles and that the child is not mentally deficient. This case improved rapidly with treatment and is now normal.

(2) M. C., æt. 1 year; weight 16 lbs. 12 ozs.; epicanthic folds marked; head 18 inches; has only just learnt to sit up; no attempt at walking; has said "mamma" and "dadda" and recognises parents readily; no signs of control over bladder yet; family history negative, no history of convulsions; child born prematurely at 8 months; no spinal disease or deformity present.

In Case 2 the fact that the infant can talk and recognise its parents is much more important than the lateness in developing control of the muscles, so that the prognosis of both mental and physical development is good.

The following case is a marked contrast to Cases 1 and 2.

(3) A. C., æt. 2 years. Brought because she cannot walk or talk and seems very irritable. She has attacks of unconsciousness, sometimes every half hour, sometimes once a day. She bites and eats anything that she can get hold of, taking pieces out of her clothes or out of the table cloth. There

is no family history of mental trouble; the mother is nervous and had a bad shock during pregnancy. On examination the most marked symptom is the great want of the power of attention, for though it can be shown that the child can hear and see quite well, she does not notice loud sounds or bright objects unless they happen to awaken a momentary flicker of interest; she gazes aimlessly round with a vacant expression, continually moving her head from side to side. She cannot walk or talk, and has made no attempt at either. There is no sign of any control over the bladder and bowels. She resents any examination of her head which is $18\frac{1}{4}$ inches in circumference. Epicanthic folds are present but the palate is normal.

In this case (3) there is no doubt that the child is a low grade case, for in spite of the facts that there is no family history, that there are but few physical stigmata and that the patient has a head of fair size, it is easy to diagnose mental deficiency from the vacant expression due to want of attention, the lateness in developing control, the irritability, and the habit of biting and eating anything that may come to hand.

CHAPTER VII.

PROGNOSIS.

Assuming that we have already decided that the child is feeble-minded, we have next to consider the future and also to see if we can to any extent foretell the amount of mental development that is likely to take place.

DEATH INCIDENCE.

Mentally defective persons die at an earlier age than is normal, and though this is probably more marked in idiots and imbeciles, the term of life of feeble-minded persons is less than the average.

Mongolian imbeciles are liable to sudden death and, generally speaking, imbeciles and feeble-minded are weaker and less resistant to disease. Also a large number of the mentally defective die in infancy before the mental infirmity is noticed.

Dr. Still states that in his opinion the mortality in mentally deficient children is probably considerably higher than that amongst normal children, and that the chances of a mentally deficient child reaching adult life are definitely less than those of a normal child, while Dr. Shuttleworth, quoted by Dr. Ireland, found that the mortality in mentally deficient children is about nine times as great as that of normal children.

Dr. Barr, from a study of 625 cases, came to the conclusion that few pass the 25th year and most die between ten and twenty. These conclusions seem to be sweeping, but from his table there is little doubt of the truth of his inferences, only 83 of the 625 cases being alive after 25 years of age. However, these observers were dealing with mental defectives including all grades, and it is probable that persons merely feeble-minded have a longer span of life than the lower grades. This certainly seems to be the case at Sandlebridge, where the mortality up to now has been practically negligible. Cases are admitted from 5 to 8 years of age, and few of the present inmates are yet 21 years old. It is therefore not possible to say more than that, under good conditions, there does not seem to be an unusual death rate in the feeble-minded from the ages of 5 to 20 years. At Waverley, in America, Dr. Fernald has had much the same experience. However, good conditions are very often wanting, and there is little doubt that the feeble-minded tend to be less resistant physically to bad conditions than are normal children.

The causes of death in Dr. Barr's cases were phthisis 121, epilepsy 102, meningitis 42, diseases of the nervous system 77, diseases of the digestive system (some of which were tuberculous) 109, pneumonia and acute infectious diseases 133. The large proportion of deaths from phthisis and epilepsy should be noted. Dr. Caldecott, quoted

by Dr. Still, found that, at the Earlswood Asylum amongst 1,000 consecutive deaths over the age of six years, 39·2 per cent. were due to tuberculosis (30·5 per cent. of these being due to pulmonary and only 1·1 per cent. to meningeal tuberculosis), 12·4 per cent. were due to epilepsy, and 10·4 per cent. to pneumonia.

A good deal depends on the amount of care taken to exclude and prevent the spread of phthisis and other forms of tuberculosis. The mentally affected often come from a stock with a weak resisting power to tuberculosis, so that once this disease gets a start, it may spread and do a lot of harm. An open air life, cleanliness, control of milk supply and exclusion of infectious cases are generally effective in keeping this disease from obtaining a hold amongst the children. Much of the mortality from phthisis in institutions has been due to absence of the precautions necessary to exclude infection. Where the "soil" and the conditions are favourable to the disease an infectious case of tuberculosis can do a great deal of harm. But where the conditions are unfavourable and proper precautions are taken to prevent the spread of infection, not many cases occur even though the "soil" is favourable.

MENTAL LIMITATIONS.

Few duties are more distressing than that of telling the parents of a feeble-minded child of the

mental limitations and of the impossibility of there being any complete cure. It sometimes seems almost better not to tell them at once, but, sooner or later, they must be made to realise that the child can never earn its living in the ordinary way, and that they should either take steps to put him under efficient and permanent supervision or send him to a good home for the feeble-minded. Though it is often a very great blow and shock at first, it is better for the parents to face the difficulty instead of procrastinating and hoping, against their better judgment, that at seven years or at fourteen years there will be some sudden and wonderful change: unfortunately they are often encouraged in these false hopes. Once provision has been made and the onus of caring for the child has been removed from the parents the whole family is benefited. The parents are spared the incessant worry of looking after the child, the child is better cared for and better educated, and the other children of the family are not influenced. A feeble-minded child often has a degrading influence on the rest of the family, and is really very much happier in a home with other similar children.

PROBABILITY OF IMPROVEMENT.

Once it is decided that feeble-mindedness is present, it is useless to shirk the fact that the condition is lifelong. Of course it is of varying degree, and it is the estimation of the degree of

defect and the likelihood of improvement that concern us here.

It is by no means easy to forecast the future mental development, but the points which help us most are :—

- (1) The age at which the child commences to walk and talk.
- (2) The type, if the child belongs to one of the special types.
- (3) The presence or absence of epilepsy.
- (4) The presence or absence of mental and physical defects, including speech defects.
- (5) The general appearance and bearing.
- (6) The progress made at school.

The intensity of the neuropathic inheritance seems to have little to do with the degree of mental defect since children with the worst family histories are not necessarily of the lowest grade. Therefore though a marked family history helps us in diagnosis, it is not of much value in foreshadowing the possibility of improvement.

- (1) *The age at which the child learns to walk and talk.*

One of the most valuable indications in predicting the degree of mental deficiency is the age at which the child has learned to walk and talk.

It will be seen from Table III. that the age, at which the power of control over the muscles develops, is at a later stage in the cases with greater degrees of mental defect, and this sign is there-

fore an important aid to prognosis. We have already discussed the causes of this delay. The later an infant learns to sit up or to babble, the worse, as a general rule, will be the future mental development. The normal infant should sit up at nine months and babble at ten months.

Therefore if a feeble-minded child is very late in learning to walk or talk he is likely to develop into one of the worst cases. Much the same applies to lateness in learning to control muscles governing the evacuation of the bladder and bowels.

(2) *Type, if any.*

If a child belongs to any of the special types, the outlook is decidedly worse, with the single exception of Cretinism.

(a) Mongols are generally worse than the average feeble-minded though there are a certain number of high grade cases. However, we seldom find that definite Mongols are of a high enough grade of intelligence to be fit for special schools, and they are more likely to fall in the imbecile class.

(b) Microcephalics are also of a low grade in the majority of cases. In a real microcephalic the degree of mental defect is usually more or less proportionate to the size of the skull, but this is only a general tendency, and fine distinctions as to the mental capacity cannot be drawn from the size of the heads.

(c) Cerebral Diplegics vary much in their mental capacity, but they are usually disappointing in both their mental and physical development. Owing to the physical infirmities only the slighter cases can attend schools. Cerebral diplegia is a condition seen far more often in hospital out-patient work than in educational or special institutions for the feeble-minded. However, certain of these and of the Hemiplegic cases do improve with treatment and care. One child, on the left of Plate X, has improved very much mentally, since he has been occupied daily in turning the mangle, and curiously enough, his weak and partially paralysed arm has improved very much also (see also p. 269).

(d) Cretinism is a different matter. Here the child is mentally deficient because there is no internal secretion from the thyroid gland, and his whole body is suffering from the want of this. Formerly all cretins were hopelessly dwarfed in mind and body, but treatment with extract of sheep's thyroid gland has a most remarkable effect. The rapid improvement at first often leads to hopes of complete cure mentally and physically. Theoretically this should be the case if treatment is begun early and kept up; but, practically, a large number of cretins which have been treated grow up into mentally slow individuals, of a fairly high grade it is true, but still definitely slower and less intelligent than ordinary persons. One case, E.Y., who has

been treated practically all her life with remarkable results at first, is now well physically but is definitely feeble-minded. In her mother's words, "she cannot go errands because everyone laughs at her, and she will play the 'softie' with any little child in the street."

Case A. was bright mentally but his bodily deformity and stunted growth were very marked. Case B. was fairly well developed physically and able to wait at table, but she was very slow and forgetful in every way. Case N. W. looks bright and intelligent but is smaller and less advanced than her sister who is two years younger.

Other cases seem to reach almost to the level of ordinary mental intelligence, and if they can get employment may be capable of earning their own living, but, practically speaking, the future mental state of many treated cretins is feeble-mindedness.

(3) *The presence or absence of Epilepsy.*

If an epileptic child is also definitely feeble-minded, the chance of mental and physical improvement depends a good deal on the extent and course of the fits. If the fits are at all frequent or severe, the child goes downhill in mind and body. We shall see that meningitis is not uncommon in such cases, and if meningitis is present it is easy to understand the progressive deterioration in bodily and mental health, and also the difficulty of controlling the fits by suitable treatment. If the fits can be controlled the

child does as well as other feeble-minded children do. Fits may reduce a high-grade case to a low-grade, so that successful treatment of the fits usually improve the mental condition, but one must never lose sight of the fact that such cases are feeble-minded, and in consequence cannot reach the level of average intelligence.

On the other hand in an epileptic who is not also feeble-minded the fits may be stopped and the child cured.

(4) *The presence or absence of stigmata.*

(a) Physical Stigmata.

The head may vary considerably in size without giving much indication of the degree of mental defect. When dealing with feeble-minded children of the special school type it is not possible to form any definite opinion from the head measurements, though of course those with the smallest heads tend to be the less intelligent type. This is shown in Table V. in Appendix II. Still, the children vary a great deal, and many of the worst cases have quite large external skull measurements. When dealing with Microcephalics and Mongols and the greater degrees of mental deficiency more reliable information as to future development can be obtained from the size of the head. In the same way, in infants the size of the head gives a good deal of information.

In estimating the possible mental development the head measurements alone must not be relied

upon, they are only of use in conjunction with other signs. The presence or absence of the deformities of the ears, palate, eyelids and other parts helps to some extent, tending to be more common and of greater degree in the worst cases. But this again is only the general tendency and many exceptions occur. Prognathism or protruding lower jaw gives the appearance of a dull heavy type, but such cases are often of a higher grade than one would expect.

(b) Mental Stigmata.

Pica, or the habit of eating dirt, coal and other repulsive things belongs more especially to the lower grades of mental deficiency, and should therefore be taken as being a bad sign. Other depraved and disgusting habits have much the same meaning. Bulimia or inordinate eating is partly due to defective sensation from the stomach and partly to want of restraint.

(5) *Speech.*

Speech defects are more common in the worst cases, but it is doubtful whether they have actually much effect in preventing progress in mental development. The child can usually make himself understood and can understand others, the only difference being that he may be more silent, and in children of normal intelligence speech defects have no great effect in retarding mental development.

(6) *Mental Powers.*

Of course a very great deal depends on the powers of voluntary and sustained attention and on the temperament. It is very difficult to get any results with children who cannot give sustained attention, and in making an estimation of the probable future mental development one must consider these powers carefully. Many apparently bright children make little progress because their attention is so easily diverted from one subject to another, and very often it is the more stolid and unemotional children that improve most.

(7) *Habits.*

The absence of natural modesty is a bad sign and is more evident in the lower grade cases. In the same way if a child cannot be taught to wash, though physically able to do so, it generally indicates a fairly marked degree of defect. A child fit for an institution for the feeble-minded should be able to learn in at least six weeks how to keep clean and that personal cleanliness is important. Of course many ordinary children do not easily learn to keep themselves clean, but in an institution much importance should be given to personal cleanliness, and a great deal can be learnt of the child's mental powers by the amount of response he makes to efforts to teach him such matters. They should also be able to feed themselves easily; at first there is often some trouble with

this, but one can soon judge whether the child will learn quickly or not. If a child cannot feed itself and there is no deformity or disease, the mental powers are likely to be very poor.

It is not difficult to eradicate the habit of masturbation if cleanliness, wholesome, plain food with the minimum amount of meat necessary, and plenty of physical exercise are enforced. The feeble-minded are easily led astray by a bad example, and bad habits spread by imitation. They are also as a rule amenable to discipline, so that, given absence of bad examples and good conditions with plenty of occupation to produce healthy tiredness, bad habits can be reduced to a minimum.

It is well to emphasise here the importance of admitting the children at an early age before they have acquired bad habits or bad characteristics: also one can see how very necessary it is for these children not to lie fallow in mind and body, if they are to avoid degrading conditions.

FUTURE OF MORAL DEFECTIVES.

The cases which show moral failings are often very discouraging. Punishment has but a temporary effect on the majority, and the only way to prevent what is apparently an ineradicable defect is to keep the child out of temptation. Such cases may be very difficult to deal with in an institution, for they cannot be isolated and their influence on the other children is sometimes

very bad. The prognosis in these cases is decidedly bad as regards their especial failing, though generally they are of high grade. However, true examples are not very common, and if they come under discipline early they can generally be sufficiently controlled to allow of their residence in a colony.

PROGRESS AT SCHOOL.

Progress in learning to read, write and calculate is of considerable value in the estimation of the degree and nature of the defect or of the amount of improvement to be expected. It must always be remembered, however, that these are educational attainments and, as such, are often defective in children not feeble-minded but only backward.

Feeble-minded children are not good at school work, and though the school teacher can form a fairly correct estimate of the mental capacities, some cases do surprisingly well at outdoor work when they are quite hopeless in the school-room (see p. 279).

It is very difficult to draw a line between the lowest grade of feeble-mindedness and the imbeciles. In an institution for the feeble-minded there are always a certain number of doubtful cases, who may have to be discharged as being of too low a grade; but, as we have said before, some congenial occupation may do a great deal even for the worst cases.

Some small responsibility or charge may give infinite pleasure to these simple minds, and a case should not be given up as hopeless until everything has been tried.

In early life much information can be obtained from noticing whether the child plays and notices things going on around him, from his attitude and expression and from his general appearance and actions, while later there are the other signs; but it is difficult to give definite rules, because large and varied experience alone enables one to predict the future mental development of the feeble-minded child with any degree of accuracy.

Of one thing, however, it is always possible to speak with no uncertain voice:—if the child is feeble-minded, he or she can never rise to the mental level of the ordinary child and should never be abandoned to earn his or her own living. Therefore, though in many cases it is possible to raise the child to a level high enough to enable him to do useful work under supervision, he should never pass from the immediate care of persons capable of guarding and guiding, what is likely to be a precarious and irresponsible lifetime.

CHAPTER VIII.

TREATMENT AND CARE.

The methods of treatment and training in institutions and schools are so excellently and so fully given by Miss Dendy in Appendix I, that it is not necessary to do more in this chapter than to refer to the medical aspects of the care of feeble-minded children.

We must realise that in dealing with feeble-minded children we are dealing with children who are considerably below the average in mental development and who can never attain to that average. We must understand that this failure of mental development is more or less uneven, so that some children are especially deficient in one mental quality, others in another, and no two cases are exactly alike. It follows that treatment and training must be conducted on both individual and general lines. Further we must realise that, though they cannot be brought up to the normal, many of these children can be considerably improved mentally and physically. In some cases it is necessary to begin with the very simplest exercises, such as handling pieces of wood and adjusting them to similarly shaped holes, and gradually to take the child on to harder ones, any occupation being better than

none. Tasks that give the children some concrete and definite object to work with are the best since the difficulty of gaining and fixing the attention is perhaps the greatest bar to successful teaching.

Those who are engaged in work of this nature should not be disheartened if no benefit is immediately apparent, because progress is often very slow and such work calls for a great amount of patience and perseverance.

TREATMENT OF A FEEBLEMINDED CHILD AT HOME.

Good habits, personal cleanliness, neatness and tidiness in clothes and rooms are things to be taught first. The child must not have everything done for it, a point that is very important as regards attention to personal needs. Want of cleanliness or absence of control over the bladder and bowels may be tolerable in a child of three years but becomes much more disagreeable and troublesome as the child grows older, and good habits can best be taught if training is begun early. The child must not be fed but must learn how to feed himself, and, since many feeble-minded children have a tendency to over-eat or to bolt their food, careful training is necessary to prevent digestive disturbances, such as furred tongue, foul breath and irregularity of the bowels.

With a judicious mixture of kindness and firmness, much can be done to improve the

mental and physical state of the child. Constant occupation, discipline and cleanliness should eliminate bad habits, and the child must be protected from association with persons likely to have a bad influence on him. Feeble-minded children are much more easily upset than are ordinary children; consequently careless or ignorant visitors may, quite unwittingly, undo in a short time what it has taken weeks to teach.

Little responsibilities such as the care of a small patch of garden add greatly to the child's pleasure, and it should not be difficult to make him happy. There is no doubt that the company of other children of a similar mental calibre is an advantage rather than a disadvantage, discipline being more easily maintained under these circumstances and the children being much more cheerful and more easily amused. Furthermore, they make great friends with animals, so that dogs form very good companions and playmates.

Open air exercise and drill or games for developing the control of their muscles are quite as important for them as for ordinary children. The games chosen should be ball games, such as football or tennis, battledore and shuttlecock, skipping, and in fact any of the ordinary games suited to training hand and eye to work together in co-ordination. Many feeble-minded children need a good deal of stimulation to make them play or work, and it is very necessary to prevent their simply sitting still gazing vacantly at

nothing and perhaps rocking to and fro. Such characteristics are more marked in the worst cases, but in all cases precautions must be taken to prevent mental vacancy, the company of their fellows being one of the best remedies.

The treatment of bed-wetting is discussed later.

SPECIAL SCHOOLS AND INSTITUTIONS.

The children are chiefly selected from those attending ordinary schools or from other cases recommended to the education authorities.

In Appendix IV. is given the form and certificate used at present in the Manchester Special Schools. The form should be filled up at the examination of the child, but it is often impossible to get a reliable history at once. A reliable history is very valuable and it is worth while to go to some trouble to verify, and correct if necessary, the points filled in at the time of the examination of the child. At the Royal Albert Asylum, Lancaster, the parents are given two forms—the first is a model filled in as a guide; the second is blank, and on it they are asked to fill in the particulars regarding their child when they have had time to collect evidence. The certificate must be filled in by the medical officer as soon as the diagnosis of feeble-mindedness has been made.

The school-hours should be arranged so that the times of opening and closing do not coincide with those of the ordinary day-schools, in order

to prevent other children from bullying and teasing the feeble-minded.

The hygiene of these schools is much the same as that of others, regular bathing, cleanliness and neatness being especially important. Consequently it is necessary that the schools should be provided with good baths and that the children should be made to bathe once a week. Lighting and heating and good airy cloakrooms are just as necessary as in ordinary schools, and the large central hall is essential for drill and exercises. The playgrounds should fulfil the usual requirements.

Physical drill is very necessary and there should be frequent breaks in lessons for the purpose of marching, skipping or other exercises. Rhythm and swing are important so that music is a valuable asset. It is fortunate in this connection that feeble-minded children have an especial liking for music, which attracts and fixes their attention more than anything else. Drill must not be too arduous because it must be remembered that feeble-minded are weaker than ordinary children; moreover they cannot concentrate on any one subject for long and need, therefore, a greater variety in drill or lessons.

Individual teaching is very important; each child should be known and his various failings noted, analysed and corrected by special instruction if necessary. For this reason classes should

be as small as possible, the maximum number of children being twenty,* and the class-rooms being built on this scale. It is remarkable how these children improve at first, when the special efforts made to gain their attention and the individual teaching begin to have an effect.

The great advantage of special schools to feeble-minded children is that, though not always conscious of their mental infirmity, they are often bullied and teased in the ordinary schools, while in addition they cannot have that special care and skilled instruction which is so necessary for the development of their crippled faculties. Instead of suffering from contact with other children of the same class, they are distinctly benefited by such association, for they lose any feeling of being behindhand, if such ever existed, and many of the higher grades are decidedly improved by being able to help others of a lower mental capacity.

CARE OF THE EYES, EARS, TEETH, NOSE AND THROAT.

The care of the eyes and ears and teeth is important. There is little doubt that the feeble-

* A book of regulations is published by the Board of Education and can be obtained from Wyman and Sons (Cd. 4780), price 2½d. These regulations came into force on September 1st, 1909, and the memorandum contains instructions as to teaching, building, regulations, grants and other items of interest to those in charge of special schools.

minded are less resistant to disease, so that ear trouble is not uncommon and minor defects may become much worse for want of proper care.

Care of the mouth and teeth is very necessary because bad teeth form convenient portals for the entry of disease besides leading to imperfect mastication and indigestion. The teeth should be cleaned morning and evening, the evening cleaning being the most important. It is a good plan to have the services of an ophthalmic, an aural and a dental surgeon available for institutions, and special school cases can be sent to their own medical men or to hospitals.

Since enlarged tonsils and adenoids may have dulling effect, may lower the general health and lead to catarrh, poor chest development and often to deafness, they should certainly be removed.

Feeble-minded children bear operations quite well, and, though one of the special types, the Mongols, are said to be an exception, I have no confirmatory evidence of this peculiarity, and it is not sufficiently well marked to prevent operations necessary for their well-being.

CONTROL OF THE BLADDER AND BOWELS.

Bed-wetting is generally remedied by disciplinary measures, though it must always be kept in mind that some children suffer from this complaint because of abnormal conditions of the urine or urinary organs or because they have

large tonsils and adenoids. These cases, however, are exceptional, and even the apparently hopeless cases yield to treatment on general hygienic lines. Such treatment is as follows :—

The bed should not be soft and the bed clothes must not be heavier than is necessary for warmth, for light bed clothes and a firm mattress are far better for the child in every way. The child should not be given anything to eat or drink for two hours before going to bed and should have as little fluid with the last meal as possible. There is no need to restrict the total amount of fluids, but they must be taken early in the day. About an hour after going to bed the child should be wakened and made to empty the bladder. If these measures are not successful medicinal treatment with belladonna may be necessary ; but enuresis or nocturnal incontinence is to a great extent a habit, which, if once broken for any length of time, is not very liable to recur.

There is not usually much difficulty in training these children to exercise control over the bowels when they are under supervision, and only the lower grade cases give much trouble.

There is, however, a good deal of difficulty in ensuring that the children have a daily evacuation of the bowels. Regularity in this respect is very important for their health and mental well-being, constipation making them duller, more irritable and more difficult to deal with, while if the child is epileptic, constipation will

increase the liability to fits. Care should be taken therefore to make a point of exercising a supervision over the daily habits. In this connection it should be pointed out that many of the troubles connected with the digestive organs may arise from imperfect mastication or bolting of food : also the children may pick up and eat indigestible things of all sorts. For these reasons furred tongue, foul breath, constipation or diarrhœa are common and give considerable trouble.

FITS.

It is necessary to distinguish between epileptic fits and fits due to hysteria, and it is by no means easy to do so in a fair proportion of cases. Amongst feeble-minded children epileptic fits are far more common than hysterical, which occur chiefly in girls. The main points of distinction are that the child with epileptic fits loses consciousness, often bites his tongue and hurts himself in falling : the movements during the fit are purposeless and the urine may be passed or the bowels opened unconsciously. There may also be a family history of epilepsy, and the commencement of the fits usually dates from early childhood. The child suffering from hysterical fits is often nervous and excitable ; the fits may be very real but there is not the same loss of consciousness as in epilepsy, the tongue is never bitten, nor does the child hurt herself in falling.

The fit may be stopped or averted by a sudden shock or surprise and often occurs when it is likely to attract attention. However, it is not always easy to differentiate the two conditions, and it must not be forgotten that a combination of the two, known as hystero-epilepsy, may occur. The treatment of hysterical fits consists of firm, but not harsh, disciplinary measures, the discouragement of any morbid desire for sympathy, and of measures calculated to improve the general health and to occupy the child's mind.

The following is a case of hysteria :—

E. C., aged 6 years; family history negative; had a bad fall and was burnt one year ago: good habits and bright mentally; has fits several times a day; has fits if she cannot get her own way; the fits can sometimes be prevented by making her run; she always falls gently and has never bitten her tongue nor hurt herself nor passed urine during the fits; if given anything nasty during the fit she spits it out.

Epileptic fits, especially if they are frequent, may have a great dulling effect, so that it is necessary to prevent them as much as possible. Quite a large proportion of feeble-minded children suffer from these fits so that there are always several cases in institutions for the care of such children. An outdoor life with regular and a not too stimulating diet have a very great effect in reducing the number of the fits and may even cure them. A child with fits should therefore

be put to some outdoor work; but not where there would be any danger if he suddenly fell down in a fit. Regulation of the bowels is very important in these cases, and if bromides are ordered care must be taken to counteract their constipating effect by the addition of some laxative such as tincture of rhubarb. Bromides have to be used fairly often to counteract both fits and mere excitability or irritation apart from fits, but they can only be given under medical supervision. Borax is also a valuable remedy. Some cases with bad fits are very intractable, neither medicinal nor other remedies having any effect, the child gradually going downhill mentally and physically. An isolated fit, that seems to be epileptic in nature, may occur at some epoch such as dentition or puberty.

THYROID EXTRACT.

A drug that sometimes does good is thyroid extract (see p. 59). In cretinism, it is essential, and its effect and methods of use have been already described in Chapter V.

A certain number of cases that are not cretins seem to suffer from a small amount of thyroid deficiency, so that improvement takes place under treatment with small doses. This improvement is, however, often only slight.

HEART AND CIRCULATION.

The weakness of the flow of blood shown by the cold extremities and other circulatory dis-

turbances common in feeble-minded children renders them less resistant to the effects of exposure and also very liable to chilblains and kindred affections. Consequently it is important to guard against undue exposure and to make their clothing and boots suitable. But this weakness must not be made an excuse for non-attendance at drill or work unless there is some trouble that really incapacitates the child. Judicious exercise and work can do much to improve the child and inure him to the effects of variations of temperature.

In this connection the question of bathing and douching must be considered. Douching and variations in temperature are good in that they give exercise to the powers of contraction and dilatation of the blood-vessels near the skin : it is the activity of these vessels that enables a person to resist the effects of variations of temperature. Therefore douching or exercise designed to stimulate these powers are good for the child so long as they are judiciously applied and are not pushed too far. Such treatment must be begun gradually and increased as the activity of the skin blood-vessels increases. There is no doubt that some cases benefit considerably from judicious hardening measures, but it must always be remembered that these children have very poor circulations and such measures should never be overdone.

TUBERCULOSIS.

One of the most important points in the care of feeble-minded children in institutions is the prevention of tuberculosis. There is little doubt that such children offer a weaker resistance to tuberculosis, and in some institutions there have been a large number of deaths from this cause. If the disease once obtains a foothold and finds favourable conditions it may spread rapidly, but by efficient ventilation and lighting and by providing the children with a vigorous outdoor life, a very great deal can be done to prevent its progress.

It must be understood that tuberculosis is due to a germ, that may be spread by the dried sputum of a person suffering from consumption or by infected milk or meat. Therefore supervision must be exercised over all persons, teachers, nurses, and attendants, who come into contact with the children, and children with active lung disease should be excluded. The milk and meat must be free from infection with the germ, which may find its way into them either because the animal from which they have been obtained is tuberculous or from accidental infection by dust or handling during transit.

It must not be forgotten that some children may have the disease in a quiescent form and that it may at any time be stirred into fresh activity by illness; a watch must, therefore, be kept for any such cases.

Experience at Sandlebridge and Waverley proves that if the above measures are adopted and thoroughly carried out cases of tuberculosis should be exceptional in institutions for the feeble-minded.

THE INFECTIOUS DISEASES.

Since outbreaks or isolated cases of infectious disease may occur in schools, homes or institutions, it is well to make preparations for dealing promptly with such cases. In many instances it is possible to send the child to the local hospital for infectious disease, but if possible it is a good thing to have isolation rooms available, where a child can be kept until he can be removed or where doubtful cases can be kept under observation.

MODES OF INFECTION.

The infectious diseases are all due to agents which may find entry to the body by being inhaled or swallowed, or by lodging in the nose or throat. The discharges from the body (especially those from the nose, throat, mouth and ear) of a person suffering from one of these diseases, are infectious, so that the clothes, towels, cups and other articles used by them may carry the disease. Infection may be introduced by visitors or a nurse; a teacher or an attendant may carry the germs from one child to another or a farm-hand or other person, suffering from the

disease, may infect the milk or food. If the child's health is in a low state when he is exposed to the disease he is more likely to be affected, but the infectious diseases may attack children in good or bad health.

Since the clothes can carry the germs, it is necessary to provide good airy cloak-rooms at schools, and at all times to see that the clothes have a good opportunity of ventilating and drying. The children should, as far as possible, use their own towels, drinking cups, brushes and other utensils, while unnecessary games, habits or customs likely to facilitate the spread of disease from child to child should be discouraged.

DISINFECTION.

Fresh air and sunlight are the best of disinfectants, few germs being able to live long under such conditions, hence the value of thorough ventilation, well-lighted rooms and of open-air games and exercises.

When a case of infectious disease has occurred it is necessary to disinfect all articles that have been in the room in which the child has been isolated. The smaller articles, which should be as few as possible, can be removed and suitably disinfected, and a sulphur candle can be burnt in the room itself to disinfect the walls and larger pieces of furniture. Other useful disinfectants are carbolic acid, formalin, lysol, creasol, and

chloride of lime. Heat is the best disinfectant of all, so that boiling or stoving is the surest method of disinfecting such articles as can be heated or boiled.

THE CHARACTERISTICS OF INFECTIOUS DISEASES.

The infectious fevers generally begin with feverishness, flushing of the face, general *malaise*, headache, vomiting, sore throat and a rapid pulse. Later the rash comes out, but since most cases are infectious before the rash appears, it is important to isolate them early. These diseases have a period of incubation, which is the period between infection and the appearance of the symptoms, and it is important to appreciate this because, when a case has occurred and been removed, other cases may be incubating and may arise at any time during the incubation period of the particular disease. The period of quarantine is that during which cases which have been exposed to infection may develop the disease. The feverish stage usually lasts for some days and is followed by the period of convalescence, during which the child may be liable to the after-effects of the disease and consequently needs supervision. The following are very brief descriptions of the common infectious diseases:—

Scarlet Fever (Scarlatina).

The incubation period is from 2–5 days and the quarantine period 14 days; the illness begins with

headache, vomiting, sore throat and a rapid pulse; the tongue is furred and is said to resemble a strawberry in appearance; the rash is a diffuse bright red blush and appears first on the chest and face; it is important to understand that scarlet fever may occur without a rash or that the rash may be overlooked, the only prominent symptom being sore throat; the temperature is usually raised up to 102° or higher and, later on, peeling of the skin occurs so that it is important to look for peeling and sore throats if scarlet fever is epidemic. Anæmia, ear disease, and kidney disease are common after-effects of this disease so that children who have had an attack must be watched for such complications. The period of exclusion from school after an attack is 6 weeks from the onset, if all discharges from the nose, ear and throat have ceased.

Measles.

Measles is a very common and in itself a less serious disease than scarlet fever; but its after-effects are very bad and it is responsible for much tuberculosis and pneumonia. The incubation and quarantine periods are each 3 weeks; the disease begins with running at the eyes and nose, redness of the eyes, and cough; the temperature rises and the child is extremely uncomfortable till the rash comes out; the rash is a blotchy, dusky red eruption and first appears behind the ears; spots may be found inside the cheeks before the rash appears and these are valuable for diagnosing cases early when an epidemic is rife, but they are not very easy to recognise; the period of exclusion is 4-5 weeks and cases should be watched for cough or wasting, or other signs of tuberculosis.

Mumps.

In this disease there is inflammation of the parotid gland, a gland that lies in the neck just below the ear; the disease is very infectious and may give considerable trouble in schools; the incubation and quarantine periods are both 3 weeks; the onset is characterised by painful swelling of the parotid gland, difficulty in swallowing, and some feverishness; the swelling may go down rapidly but the case is still infectious and the period of exclusion is 4 weeks or longer if the swelling persists; the swelling is just below the ear and over the angle of the jaw and must not be confused with the swelling of the glands lower down and further back, which are often swollen if the tonsil is inflamed.

German Measles.

This disease is much less serious than measles but epidemics occur in schools; it is almost intermediate between scarlet fever and measles in some ways, the rash being of tiny red spots, which are not so blotchy as those of measles, nor is the rash so diffuse as that of scarlet fever; cases vary very much and sometimes there is hardly any rash at all; the incubation period is 14 days. The disease is a very mild one and chiefly gives trouble on account of the difficulty of distinguishing it from scarlet fever or measles; the periods of quarantine and exclusion are 3 weeks each.

Diphtheria.

This is not a fever but a localised disease of the throat with general symptoms due to the poisons absorbed from the inflamed throat. It is very infectious and the incubation period is 1-5 days; the

child first begins with hoarseness, sore throat, a brassy, barking cough, difficulty in swallowing and symptoms of general illness, but the temperature is not high as a rule. On looking at the throat a whitish membrane is seen adhering firmly to the tonsils and perhaps spreading to the palate: the disease may also affect the nose or the lower parts of the throat and in either of these cases no membrane can be seen: difficulty of breathing may develop owing to the blocking of the air passages by the membrane. The best treatment for such cases is a dose of anti-diphtheritic serum given under the skin and often this injection has to be given as a preventative to persons who have been exposed to infection; the quarantine period is 14 days and the period of exclusion 6 weeks or until all discharges have ceased; sometimes cases of nose diphtheria with chronic discharge are overlooked or allowed to come back to school and may be the cause of fresh cases of the disease. The after-effects are anæmia, weakness and paralysis of certain parts such as the palate, the legs, the eye-muscles and the heart, due to the poisoning of the nerves; in consequence children who have had diphtheria must be watched for paralysis and for heart weakness.

There are other causes of sore throat such as rheumatism, influenza, and follicular tonsillitis, but a sore throat must be always regarded with suspicion and a watch kept for the appearance of a rash or of membrane.

Conjunctivitis.

“Cold in the eye” or inflammation of the membrane lining the eyelids and covering the front of

the eyeball may occur in epidemic form in children. The discharge from the eyes is usually very infectious, being carried from one child to another by soiled towels, handkerchiefs, hands, clothes and other means. A lowered state of health, rheumatism and other diseases, or the presence of a particle of dust or grit, may be the cause of the isolated cases. If the inflammation is limited to the conjunctiva and does not cause ulceration of the cornea, (which is the transparent membrane in front of the pupil), there is not much danger to sight, but the possibility of the presence of such an ulcer must always be borne in mind and no cases should be neglected. Conjunctivitis, though not always actually painful, usually gives rise to much discomfort, and the discharge may become purulent and copious. Frequent bathing with boracic, alum or other astringent lotions and with warm water is necessary and the use of yellow oxide of mercury ointment at night-time will usually prevent the eyelids from sticking together. The general health should receive attention and strict measures must be taken to prevent the spread of infection, any cloths contaminated with the discharge being burned or well boiled and the case or cases being isolated if necessary.

Ringworm.

Ringworm is a disease which most commonly affects the scalp but may attack the skin of the body or limbs. It spreads from one child to another by actual contact or by infected caps or brushes. The disease is caused by a fungus which attacks the hair causing it to become brittle and break off; the fungus extends down to the root of the hair so that the part left in the head is still infected. The

diseased areas take the form of rings which appear as baldish patches showing a sparse stubble of broken-off hairs: if on the skin of the body the fungus forms circles, more or less complete, marked out by a reddened line. If left to itself the disease persists for months or years.

The treatment of ringworm of the scalp is rendered difficult because the fungus is deep down in the roots of the hair and cannot be readily reached. The hair should be cut off close over and round the patch and a careful inspection made for other diseased areas, which are generally more numerous than was at first suspected. The hair must then be washed with carbolic soap and an ointment of oleate of mercury (5-10 per cent.) should be applied, the rest of the scalp being rubbed with carbolic oil. The treatment needs considerable patience and must be continued for some time. When the fungi have been killed the hair begins to grow again. Some cases are very difficult to cure because the ointment does not reach the roots of the hair and in such cases the best results are obtained by applying irritants that cause inflammation and so destroy the fungi or by suitable x-ray treatment.

Though treatment has to be continued for some time there is not much likelihood of the disease spreading to other children after one or two thorough applications of mercurial ointment have been made; therefore isolation is not necessary when treatment has been carried on for a day or two.

Pediculosis.

Pediculosis or lice in the head is a very common and disagreeable affection. The pediculi lodge in the hair of the head, most commonly over the ears,

and lay their eggs as nits on the hair. The lice cause a good deal of irritation so that, through scratching, sore places, scabs and matting of the hair are often present. The glands at the back of the neck may become enlarged and there may also be a considerable degree of anæmia and irritability. Pediculosis chiefly affects girls because they have long hair, and, since the lice pass very readily from one girl to another, one infected head, if overlooked, may be the cause of a large outbreak. Since children may be infected anew from visitors or other persons it is necessary to keep a sharp look out for such cases. Practically in institutions it is better to arrange for all the girls to have their hair cut short and to keep it so.

The treatment of pediculosis is really quite simple if undertaken systematically and thoroughly. First the lice must be killed. If the head is not very sore, a thorough washing with methylated spirit will effect this or a compress of lint that has been soaked in carbolic lotion (1 in 20) is equally efficient if left on all night. Neither of these measures affect the nits or eggs on the hair, so that if nothing further is done these hatch out and give rise to fresh trouble. The most effective and ready way of killing the nits is to soak and comb the hair through with Oil of Sassafras, which, though it has a powerful smell, is not unpleasant.

If this application is made thoroughly for three successive days the vitality of the nits is destroyed and they soon drop off instead of hatching out. Of course the whole treatment is rendered much more easy if the hair is cut short and, if there are many sores, this is essential. Scabs and sores can be softened by fomentations and treated with mild mercurial ointments.

Pediculi may be found on the body and lodging in the clothes, but they are far more common in the head.

Impetigo.

Impetigo is a skin affection in which there are numerous spots filled with matter on various parts of the body; the spots may run together, the discharge from them forming yellowing crusts and scabs. There is a contagious form of impetigo which may give rise to an epidemic. A child with impetigo is usually in a low state of health, needing general tonics as well as local treatment; the scabs or crusts should be softened by bathing and fomenting with hot water and, when the crusts have been removed, a mercurial ointment should be applied to the surface; if a large surface is involved the ointment must be a weak one. The bowels must be regulated and the general condition improved. Impetigo sometimes complicates scabies and pediculosis or it may follow a cut or abrasion that has got dirt into it and become infected, the spots then developing in the surrounding areas of the skin and forming patches with characteristic yellowish crusts and scabs. Chicken-pox gives little yellowish spots that are similar to small impetigo pustules but they are much smaller, more uniform and come out in crops. Any sore place may, by infection through scratching, become impetiginous in nature.

Boils (Furunculosis).

These are usually due to a lowered general condition and an impoverished state of the blood. Medicinal treatment with iron, regulation of the bowels, dieting and open-air exercise are necessary

and the boils themselves may have to be incised and fomented. In some cases boils are very persistent and difficult to cure.

In large institutions trained nurses should be provided to do the necessary dressings and carry out the medical officer's instructions. They should have some knowledge and experience of cases of infectious disease.

CHAPTER IX.

THE CELL, REPRODUCTION AND HEREDITY.

BI-PARENTAL REPRODUCTION.

Every human being is made up of millions of cells, which are of different size, shape and function in different parts of the body. Also every human being has originally sprung from two cells, one coming from each parent, the male cell being known as the spermatozoon and the female cell as the ovum. These two cells unite and fuse, this marking the conception of what, under ordinary circumstances, is going to develop into a complete human being, and the fused mass is endowed with the power of so developing.

Soon after this fusion or conception, growth accompanied by rapid divisions takes place. In this way arise enormous numbers of cells, which take on various shapes and forms and are gradually evolved into the complete human body.

Weismann's doctrine of the continuity of the germ-plasm.

It is now generally accepted by biologists that the germinal or germ-plasm, which contains all the cells that have to do with reproduction, is continuous, passing from one generation to

another and keeping more or less specialised and distinct from the somatic or body plasm.

Each man or woman or child is therefore but a temporary dwelling place for the germ-plasm, which passes on to originate new and successive generations.

It is important to note, however, that each conception introduces a new element since fresh germ-plasm is added from the other parent.

We can now see that the germ-plasm is not a new structure developed by the body cells of an individual. It exists before the body cells and produces them. A prospective parent therefore contains the germ-plasm from the very first moment of his or her origin, *i.e.*, at the conception by his or her parents. It is important to understand these points because we have to decide whether the germ-plasm is susceptible to influences such as poisons, drugs, diseases or deformities that have affected the body-plasm.

First, it must be clearly understood that the deformities that have affected the body cells cannot affect the germ-cells so that they in the next generation will produce an individual with a similar deformity: nor are characters acquired by the body cells (such as immunity to disease) impressed on the germ cells.

By far the most important influences acting on a germ-plasm of either good or bad stock are those introduced by fusion with the germ-plasm of the other parent. Should this other germ-

plasm be of bad stock and contain a taint of inherited disease, that taint contaminates the good stock or intensifies the taint in an already bad stock. The result may or may not be evident in the next generation, but a good stock has become a tainted one or a bad stock has become worse in this way.

This mixture of stocks, which may be for good as well as bad (for bad stocks may be raised by union with good stocks), is therefore the most important factor that influences the germ-plasm.

HEREDITY.

Heredity is "the capacity of a plant or animal to reproduce individuals of a like kind."

Departures from this rule of like begetting like are known as variations. They are (1) inborn and due to a peculiar development resulting from defect in either or both of the germinal cells; (2) acquired and due to outside influences acting after the embryo has formed: the latter are known as modifications.

Inborn variations may be of several types. They may be either (1) progressive or forming an advance on the previous generation; (2) retrogressive or on the backward grade.

Thus a person, who, born of average parents, is gifted with some power that raises him above the average, is a variation of the progressive type; and the person, whose innate characteristics

render him less able to compete with his fellows or to survive, is a variation of the retrograde type. It is natural for the human race to vary in this way, some on the upward grade and some on the downward, but there is also always a tendency to return to the average mean, and both progressive and retrograde variations tend to disappear in future generations for this reason.

(3) Reversive, when there is a sudden reappearance of a character exhibited by some previous and remote ancestor and not by the parents.

It is now generally accepted that the child develops from the germ-plasm which is formed before the parents have acquired any variation, so that it is almost certain that no acquired variations are transmitted and that, therefore, the nourishment and surroundings of the parents before *conception* of the offspring have no effect on the *inherited* characters handed down.

However, some authorities suggest that the germ-plasms of stocks tainted with mental trouble are unstable and unbalanced, so that toxic influences may determine a variation that would not have appeared under favourable conditions.

One of the effects of civilization is that Nurture is opposed to Nature. If Nature holds undisputed sway the unfit are not able to live and consequently die out sooner or later; but if Nurture is called in and the unfit are helped in

every way, they are enabled to live, and to propagate and keep in existence a tainted stock.

Natural selection has a great salutary effect on our evolution and nowhere is its influence more effectively exercised than in determining inherited immunity from disease. If a race is subjected to a disease, gradually those springing from germ-plasms with a poor resisting power are eliminated and the race, which now springs chiefly from germ-plasms which have inherited a high resisting power, becomes more able to fight against the disease.

Mutation.

It is possible for a new species to arise by a sudden jump from the parent species. These sudden jumps are known as mutations and give rise to sports, which are individuals with a definite new characteristic: but it must not be thought that these sports necessarily vary much from the parent species. Mutation is usually very slight though it is none the less definite, and it may be (1) progressive, (2) retrogressive, or (3) regressive, *i.e.*, harking back to a previous ancestor more or less remote.

Another point is that these mutations breed true if mated together and, if fitted to survive, will form and perpetuate a new species.

The mutation theory therefore holds that new varieties, *i.e.*, individuals exhibiting new and distinct characters, arise suddenly and from no apparent cause.

It might be expected that an accumulation of the effects of environment would tend to produce these sudden jumps, but though this may be the case, there is no weighty evidence in its favour. Indeed the origin of sports is often quite independent of the environment. It must also be remembered that Natural Selection comes into play, and as a rule only those mutations that are suited to their environment can survive; further, if these mutations are to survive and not be swamped, it is necessary for them to arise in sufficient numbers to breed with one another and to have offspring.

Mendelism.

Mendelism teaches us to look on the animal or plant as a composite body made up of a great number of unit characters, and important points shown by Mendelism are the breeding-out or segregation of characters and the possibility of a character being latent but coming out in a future generation.

Biometry.

Galton and Pearson formulate laws of Ancestral Inheritance, arguing that it is possible to express numerically the amount of inheritance received by an individual from parents, grandparents, or great-grand-parents.

This method of study is called Biometry, and aims at the elucidation of the problems of heredity by the collection of large numbers of accurate statistics. But the laws of ancestral inheritance should be taken as applying to masses and not to individuals.

CHAPTER X.

THE CONDITION OF THE BRAIN IN FEEBLE-MINDEDNESS.

THE LIFE-HISTORY OF THE CHILD AFTER CONCEPTION.

The accompanying diagram (modified from Ballantyne) shows that, after conception, there are three periods:—

- (1) The period of intra-uterine or ante-natal life, which is sub-divided into the embryonic and the foetal periods.
- (2) The natal period, when birth takes place.
- (3) The post-natal period, when the child leads a separate existence.

It is necessary to point out and emphasise that conception and not birth marks the beginning of the life-history of the child.

During the period of intra-uterine life the development and growth of the body-cells takes place; therefore these cells are subject both to extraneous influences transmitted through the mother's blood and to the innate or internal influences, which cause them to go on growing and developing.

Two processes, development and growth, occur and a certain amount of distinction must be made

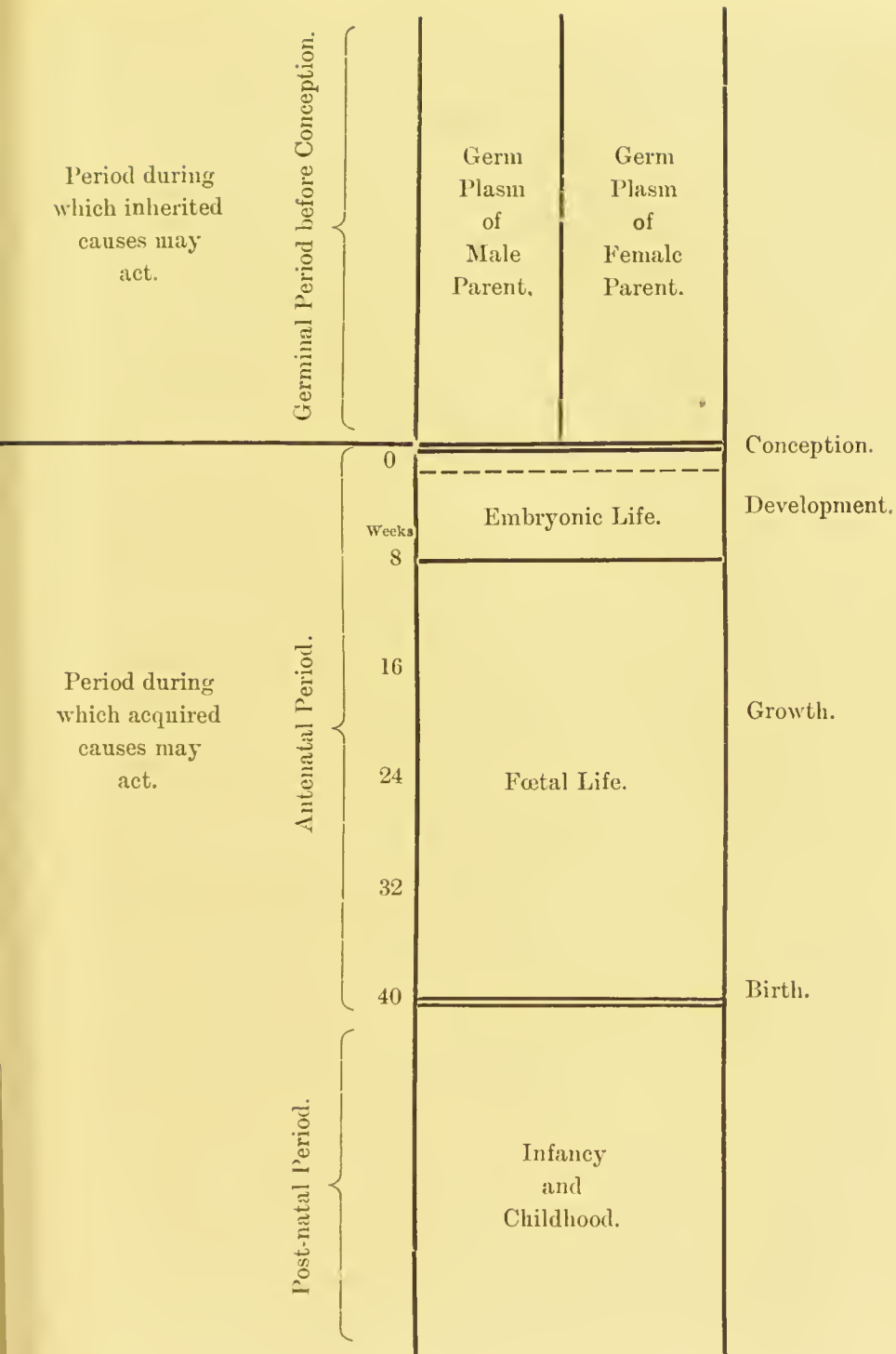


Diagram I., showing the periods preceding and following conception.
(Modified from Ballantyne).

between the two, development being practically a formative process and growth being increase in the size of the miniature human being.

The period of formation is surprisingly short compared to the period of growth. At the end of seven weeks from conception most of the gross formative processes are complete, the remaining seven months being the period of growth. The first period is known as the embryonic and the second as the foetal.

The formative processes that take place during the first weeks of intra-uterine life are so rapid that at the sixth or seventh week the embryo has already taken on the face and form of a human being, and the different processes, though not perfected, have largely been determined by this time.

After this week there is a slackening of development and an acceleration of growth. The foetus is now nourished by the maternal blood which passes through the placenta to the foetal heart, thence going first to the head and brain. The fact that the blood goes first to the brain shows that it is necessary for that organ to get better blood than the body and limbs at this period.

THE BRAIN.

We are chiefly concerned with the development of the brain and, as might be expected, the formation of so complicated and intricate an

organ is not completed as rapidly as the formation of the body and limbs. The main parts of the brain are formed fairly early, so that at the sixth month of intra-uterine life the organ has acquired its general shape but has not developed its fissures. At birth it is much more advanced but by no means completed, and for the first six months after birth there is very rapid growth and development.

According to Tredgold the brain weighs at birth about 300 grammes and grows until it weighs 650 grammes at the end of the first six months, 750 grammes at the end of the first year and about 1,200 grammes at the end of the fourteenth year. This increase is due to the development of nerve cells and their processes. The parts of the brain which control the association of impressions and ideas and which are made up of a complex system of fibres linking up the various centres, are the last to be developed. This is important when we see that most of the higher intellectual faculties depend on the powers of association and ideation.

The actual period when birth is taking place is a critical one since the infant is exposed to considerable risks from accidents or injuries; such injuries may be due to prolongation of birth, which throws a great strain on the blood-vessels of the brain and may lead to their rupture. However, this does not often happen, and gross injuries such as effusions of blood affecting

the brain, usually cause marked physical deformities and paralysis so that, if the child survives, he will be a mental and physical cripple belonging to one of the special types. (See Chapter V.)

After birth the child is exposed to injury and disease which by causing inflammatory mischief may give rise to mental deficiency, but such cases again are not common.

PATHOLOGY.

It must be pointed out that when considering pathology, idiots, imbeciles and the feeble-minded all come in the same category, the difference being one of degree only.

Most writers are agreed that the brains of the mentally deficient do not as a rule show evidence of gross abnormality or disease, though a certain number of cases may do so. Such cases are more likely to be reported, and thus it may be thought that they form a larger proportion of all cases than they really do.

The Nerve Cells of the Brain.

The brain is made up of millions of nerve cells which are embedded in a supporting tissue, the neuroglia. From all these nerve cells, processes or branches are sent off to communicate either with the nerves going to the body or else with other nerve cells in the brain. These communicating branches or fibres springing from the nerve cells pass from one part of the

brain to the other, from one side to the other and from the brain to the spinal cord, being, when numerous, collected into great bundles of fibres. Thus the brain can be regarded as having two systems of fibres (1) bundles of nerve fibres coming down to communicate with the nerves to the body and (2) an extraordinarily intricate and complete system of intercommunicating association fibres.

There is no doubt that the intellectual faculties develop and decay with the development and decay of the nerve cells in the brain and their branches. Investigation of brains of lunatics shows that there is a degeneration of these cells leading to a decay of the mental powers, and the brains of idiots show, not a degeneration, but an under-development of these cells, leading to a corresponding under-development of the mental faculties (Bolton).

The period of greatest growth and development of the brain is from its first appearance early in intra-uterine life to the sixth month after birth.

We must remember, however, that the nerve cell needs to be endowed with the innate power to develop and it is this power that is wanting in most cases of feeble-mindedness. A cell which possesses this power may very occasionally be prevented from developing by some accident, but in by far the majority of cases there is wanting the innate power to complete development.

In mental deficiency the brain is found to contain fewer cells than should normally be present, while at the same time these cells are imperfectly developed. Imperfect development of these nerve cells means that they do not send out the processes and interlinking fibres that are all-important for transmitting impulses, for correlating the various senses and for association and ideation. There is also an irregular arrangement of the cells, which may be at all angles or upside down. Areas of sclerosis with overgrowth of the supporting connective tissue are often present also. Further, Dr. Tredgold, to whose careful researches on this subject we are much indebted, finds that the proportion of immature cells seems to be distinctly in relation to the degree of mental defect.

The human brain can be compared to a well-organised, modern community, where overhead there are innumerable telephone and telegraph wires interlinking and co-ordinating the activities of the great centres, which in their turn have channels of communication with the forces they control. Just as a primitive state, in which there has been little development of communication between the various centres of activity, is slow to respond to any call made upon it and falls behind other better-organised communities, so the brain of a feeble-minded child is not well enough endowed to allow of efficient self-government.

Again just as some primitive communities

may be comparatively well advanced in some branches and backward in others, so underdevelopment of the mental powers, besides being more or less general, is in many cases of an uneven or irregular nature, some children being especially deficient in one mental process and others in another.

This comparison between the feeble-minded child and the imperfectly governed community must not be carried too far, however, for the two differ in that the community could by effort and application reach the level of other communities, while the feeble-minded child can only be improved to a limited extent and can never reach the level of a normal child.

Meningitis and Encephalitis.

Meningitis is an inflammation of the membranes surrounding the brain and encephalitis is inflammation of the brain substance. A combination of the two may occur or a previous inflammation may leave scar tissue which is liable to contract and cause deformity. Meningitis and inflammatory processes can cause an arrest of development, the arrest in this case being not inborn but accidental or acquired.

Feeble-mindedness is not often due to meningitis, and cases caused by such lesions come under the heading of secondary mental deficiency. Some observers consider that meningitis plays a large part in the causation of feeble-mindedness ;

but it must not be forgotten that, not only may meningitis occur in the brain of a child already feeble-minded, but that the brains of such children are more liable to inflammatory and degenerative conditions than are those of normal children.

Both Wilmarth and Wilhete found that evidences of a slow meningitis were not uncommon in the brains of mentally deficient children, but this does not prove that it is not usually a secondary condition rather than the cause of the mental trouble.

Wilhete found that a slow progressive meningitis was more common in the feeble-minded children suffering from fits, and this coincides with clinical observation, for a certain number of cases do not improve with treatment but get steadily worse both as regards the number and severity of the fits and the mental capacity; others, who react to treatment, improve in every way.

We can conclude from recorded facts that—

(1) In the majority of cases of mental deficiency (90 per cent.) there is a permanent under-development and numerical insufficiency of the essential part of the brain tissue, viz., the nerve cells and their branches; and that this under-development is not due to disease or injury, but to an innate want of power to develop.

(2) In the minority of cases (10 per cent.) the power to develop was originally present but disease or injury either affected the brain so as

to prevent normal development or destroyed parts essential to proper mental activity.

DEVELOPMENT, REPRODUCTION AND HEREDITY IN RELATION TO PATHOLOGY.

Let us now see how these facts of pathology adjust themselves to the theories of heredity and to our knowledge of development and reproduction.

It has been pointed out that the germ-plasm is continuous, that it has a fresh element introduced by bi-parental reproduction, and that it is subject to variations, progressive or regressive, to reversion and to mutation. It has been shown also that there are rapid formative processes in the period of intra-uterine life making it quite possible that, if the hereditary powers of development are impaired, those processes may remain incompleted.

Primary mental deficiency arises from this *failure of development*, which is due to causes, inherent in the germ-plasm, whereby that substance is not able to reproduce in full the highly developed brain of the normal human being, and it is a variation of the retrograde type.

The several reasons for this opinion are based on pathological and other grounds and are as follows :—

(1) We have already seen that pathological evidence shows definitely that there is an incomplete development of parts of the brains of the

mentally deficient, the nerve cells being fewer in number and imperfectly formed. Thus the mentally deficient do not show new or mutational characters, but general incompleteness of development.

(2) The children born to two parents, who are both mentally deficient, are not always similarly affected and may be of normal intelligence. There is not much evidence on this point, and there is no doubt that almost all of the children born under such circumstances are mentally deficient. However, Richardson quotes an example where a child of normal mental powers was born to two parents, who were both mentally deficient, the father being a feeble-minded boy of eighteen and the mother a feeble-minded girl of sixteen. It seems, therefore, that, even when both parents are feeble-minded, the children will not necessarily be feeble-minded, though the tendency for them to be so is very strong indeed. This is a good illustration of the law of heredity which states that there is always a tendency to return to an average mean, and proves that mental deficiency is a variation and not a mutation, since, if it were so, all the children born to parents who were both mentally deficient would be similarly affected.

(3) About the same time as important developments take place in the brain there are important formative processes going on in structures which, as we have seen, are often imperfect in the

feeble-minded. Such structures are the external ear, the palate, the fingers, the eyelids and other deformities which constitute the stigmata of degeneration. Ballantyne states that the chief formative processes of these structures and those of the brain are completed at about the same time of intra-uterine life. This certainly suggests that there is an incomplete development in the brain as there is in these other parts.

It must be pointed out here that the deficient development of the brain cells may not be evident microscopically till later, but the number of the brain cells is determined and they are originated and have received their endowment of power to develop much earlier on.

(4) Feeble-mindedness is not likely to be a reversion to a previous type. It has already been pointed out that as far as concerns a discussion on heredity and the causation of feeble-mindedness, we can put the idiot and the feeble-minded in the same category, the difference being only one of degree.

Now an idiot is far less sensible than the lowest type of the native races or even of the lower animals, for he cannot guard himself against common physical dangers : an aboriginal of low type, if brought to Europe at a very early age, would develop far greater intelligence than the best of idiots or imbeciles, though there is little doubt that he would not approach the European standard ; further, there are mentally

deficient animals just as there are mentally deficient human beings, but Natural Selection exerts its influence and such animals die out.

It might seem that some of the more definite types such as Mongols or Microcephalics are sports or mutations and would breed true to their type; but this is probably not the case because the brains show an incompleteness of development rather than any new morphological characters. Microcephaly may be a reversion to an ancestral type of small brain, but it is a curious fact that this deformity often affects more than one of the children of a family and may affect them all.

(5) If mental deficiency were not due to this loss of the innate power to develop but were due to inflammatory conditions such as meningitis, acting during embryonic and foetal life and determining an arrest of development, it should be more common where disease and bad conditions prevail. But the available evidence points rather to the reverse as being the true state of affairs.

Mogridge states that the ratio of the feeble-minded to the general population is the same in all the States of the Union, and there is very little difference between the ratio in the United States of America and that of older countries.

When Norway and England were used as illustrations it used to be thought that alcoholism

was responsible for a large amount of the existing feeble-mindedness, but in Iowa, where the drink habit is as low as it can be, there is the same proportion of feeble-mindedness as in the other States.

Nor does pathological evidence show that meningitis often gives rise to mental deficiency by causing arrested development; it may supervene later, but in such cases does not occur until after the incomplete development has been determined.

CONCLUSIONS.

(1) It seems therefore that feeble-mindedness, with the exception of certain types due to definite lesions, is caused by a failure in the process of development, resulting in numerical insufficiency and imperfect formation of the nerve cells and their branches in the brains.

(2) That the incomplete development is due to the inability of the germ-plasm to endow the cells, which are to make up the highly specialised human brain, with power to produce either (1) a sufficient number, or (2) a sufficiently high type of nerve cells to complete the formation of a normal organ. Feeble-mindedness is, therefore, a variation of the backward or retrograde type.

(3) That this incomplete development is permanent, and is chiefly evident in that the imperfect condition of the nerve cells results in

an insufficiency of the association fibres that serve to join up and correlate the various parts of the brain, mental deficiency following as a natural result.

(4) The types described as exceptional in conclusion (1) form a small minority of all cases and are secondary or accidental types due to injury or disease.

CHAPTER XI.

THE CAUSATION OF FEEBLEMINDEDNESS.

INHERITED FACTORS.

The causes of mental deficiency can be divided into two classes :—

- (1) The inherited causes affecting the parental germ-plasm before conception of the child.
- (2) The acquired causes or factors that may affect the embryo or foetus in utero, or the child after birth.

So much confusion has arisen owing to misunderstandings as to what are inherited and what are acquired conditions, that it is of advantage to explain here exactly what is meant by these terms.

A reference to Dia. I. p. 187, will show firstly that inherited causes must act before conception, and secondly, that acquired factors may affect the embryo or foetus in utero or the child during or after birth. It is important to appreciate that *conception* and *not* birth marks the beginning of life for the child and that, though for the first nine months the child does not live an independent existence, it has nevertheless started on its career as a human being, has inherited its

innate characteristics for good or for ill, and is for many of these months practically a fully formed human being. Therefore, when we divide the causes of mental deficiency into two classes, the inherited and the acquired, by the inherited causes we mean those affecting the parental germ-plasm before conception of the child, and by the acquired those affecting the embryo, the foetus or the child. Acquired factors acting on the child through their effect on the mother during the gestation period of intra-uterine life are none the less acquired, and are not inherited in any way.

In Chapter I cases of feeble-mindedness were divided into two classes:—

- (1) Primary, forming 90 per cent. of all cases.
- (2) Secondary, forming 10 per cent. of all cases.

Though the causes of feeble-mindedness are by no means clearly defined, it seems probable that class (1), the Primary form, is caused by what is called the Neuropathic Inheritance, with or without one or more of certain reinforcing factors, which are either inherited or acquired; and that class (2), the Secondary form, is caused by disease, inflammation or injury.

We can now proceed to tabulate and discuss the causative factors under their several headings.

INHERITED FACTORS.

The Inherited factors are best tabulated as follows :—

Inherited factors affecting the parental germ-plasm before conception of the child.	(a) Transmitted neuropathic taint, giving neuropathic inheritance.	{ Mental deficiency. Insanity. Epilepsy. <i>(Hysteria and Neurosis).</i>
	(b) Vitiating disease or habits	{ Alcoholism. Tuberculosis. Other debilitating disease.
	(c) Sociological factors.	{ Ages of parents. Blood-relationship or Consanguinity of parents.

(a) NEUROPATHIC INHERITANCE.

There is no doubt whatever that by far the most important cause of feeble-mindedness is an inherited taint of certain affections of the nervous system, such an inheritance being described as the *Neuropathic Inheritance*. These affections of the nervous system, which have such a far-reaching effect, are mental deficiency, insanity and epilepsy. They seem to be quite interchangeable as far as heredity is concerned,

though the descendants of persons afflicted with each disease are more likely to suffer from the same trouble: this is especially the case with epilepsy, Gowers finding that 50 per cent. of the descendants of epileptics were similarly affected.

A family history of insanity, epilepsy or mental deficiency occurred in 48·4 per cent. of 1000 Manchester cases of feeble-minded children,* and, if it had been possible to obtain all details, this percentage would probably have been increased, since Tredgold, after making a more searching enquiry into a smaller number of cases, found a neuropathic inheritance of epilepsy or insanity in 64 per cent. We have already seen that the Royal Commissioners for the

* A study of the family histories of 1000 cases of feeble-mindedness seen in Manchester gives us the following general conclusions: 48·4 per cent. showed a family history of insanity, epilepsy or mental deficiency, the three inherited causes of neuropathic inheritance. In 6·8 per cent. of these there was a combination of the two or three factors.

Including alcohol and tuberculosis 69 per cent. showed a history of one or more of the causes classed as inherited.

As we shall see, these figures are not of any great value, especially as regards indefinite conditions like tuberculosis and alcoholism where only the most complete family histories are of real value. The family histories were very carefully taken but the unwillingness and ignorance of parents giving the information made them incomplete and inexact in many instances.

Care and Control of the Feeble-minded (1908), after hearing a large amount of expert evidence, summed up conclusively in favour of the inherited nature of feeble-mindedness.

A history of neurosis or hysteria or other manifestations, pointing to an unstable nervous system in either of the parents, may show that the child comes from a bad stock; but such conditions as neurosis and hysteria are very indefinite and include a large variety of symptoms that may be due to several causes other than an innate weakness of the nervous system.

The neuropathic inheritance is enough in itself to determine feeble-mindedness, but it may be reinforced by some additional factor; additional factors such as disease or poisons will be discussed later, but of more importance is hereditary taint on both sides of the family, the one taint reinforcing the other.

Therefore the neuropathic inheritance, whether it is reinforced or not, is by far the most important cause of primary mental deficiency.

Unless this fundamental fact is fully appreciated and widely known little can be done to reduce the numbers of the feeble-minded. The recommendations of the Royal Commissioners, the efforts of the American States and the work of all the best societies are based upon the fact that feeble-mindedness is inherited and inbred, or, as the Commissioners put it, "spontaneous"

and not necessarily developed as a result of the bad influences of environment or disease.

Order of Birth of Parents.

Dr. Hunter, of the Royal Albert Asylum, has shown me the results of his enquiries into the pedigrees of families containing mentally deficient persons, and he has found that mentally deficient children are found much more commonly in the families of those who are the first-born of the earliest-born members of the branch that is affected by the hereditary taint: the first-born are more likely to have mentally deficient children and next to them the second-born, and so on, there being a more or less steady diminution in the tendency to transmit the taint as the parent comes later and later in his or her family. Thus it seems that if there is a hereditary taint in a family, the first-born are the most likely to transmit that taint, though not necessarily to show it themselves. To be of any value in illustrating this point the family history should go back beyond the parents and also include the father's and mother's places in their respective families. Further investigations are needed to establish these results as facts, but they are very striking.

(b) VITIATING DISEASE OR HABITS.

Alcoholism.

Much has been written on the effect of alcoholism of the parents as a cause of mental

deficiency. One of the most valuable and recent accounts will be found in the *British Journal of Inebriety*, January, 1909.

Most of those who support the view that alcoholism has a great effect in causing mental feeble-mindedness base their conclusions on statistics. Now statistics concerning alcoholism are, as a rule, utterly worthless for two reasons: (1) because many people are not clear as to what is meant by alcoholism; and (2) because only personal and intimate knowledge of the habits of both parents is of any real value for statistical evidence, hearsay evidence being open to many objections.

Therefore let us first understand clearly what is meant by alcoholism and then let us see how alcohol can possibly act.

The Royal Commission find that 60 per cent. of chronic inebriates are either mentally deficient or are persons of such unstable mental balance that they are subject to violent outbreaks from small doses of alcohol. These are the individuals classed as chronic inebriates, who send up our records of drunkenness. In reality, like moral defectives, they are the unfortunate inheritors of mental instability, and if they are the progenitors of mentally deficient children, it is because they come from an afflicted stock and not because they have poisoned themselves with alcohol. Their tendency to alcoholism is simply evidence of the neuropathic inheritance. On the other hand

there are many quiet drinkers who continuously poison their systems with alcohol but are not known to their relations as drunkards.

These points show how difficult it is to obtain definite and reliable evidence on this problem, and it is only to be expected therefore that statistics will vary very much. The following figures are given to illustrate the uselessness of drawing conclusions from any but the most accurate and complete family histories.

Barr found a family history of alcoholism in 4.4 per cent., Beach and Shuttleworth in 16.4 per cent., Bourneville in 62 per cent., and Tredgold in 46.5 per cent. The last author points out that, in five-sixths of these family histories showing alcoholism, there was also a neuropathic heredity. The Manchester cases showed 9 per cent. Much the same result is obtained in comparing the statistics concerning a family history of tuberculosis. Tuberculosis is so common and so varied that family histories given by any persons other than medical men are usually misleading.

Memoir X. of the Eugenics Laboratory (Pearson and Elderton) illustrates these points more fully, and a careful analysis of the family histories shows how slight may be the effect of parental alcoholism on the children.

According to the views of many eminent neurologists alcohol has a much greater poisoning effect on a stock already tainted with a

neuropathic inheritance than on an untainted stock. If this is true, it is more likely that parental alcoholism may have a definite action purely as an accessory or determining cause. We have no proof of this beyond the fact that neuropaths are certainly very much more susceptible to alcohol than are persons of sound nervous system. Mott comments on the rarity of alcoholic cirrhotic disease of the liver in asylums, a fact that point to the rarity with which mental degenerates take enough alcohol to poison their tissues. More often they are subject to violent outbreaks from taking small quantities, followed by forced or voluntary periods of abstention with freedom from its toxic effects. It is possible, therefore, but by no means proved, that alcohol has a selective action on the nervous tissues of neuropaths.

The effect of alcoholism in the mother during pregnancy and *after conception* is not an inherited factor and is discussed later under acquired causes.

Tuberculosis.

Much of what has been said concerning the family histories of alcoholism applies also to those of tuberculosis. As in the case of alcoholism little reliance can be placed on statistics, for (though I am convinced that tuberculosis is commoner in the families of the mentally deficient than in those of normal persons) it is very difficult to obtain reliable histories. It is

well-known that the insane are especially liable to suffer from tuberculosis, this tendency being due to a weak resisting power to infection and to the effects of the disease. We have not noticed that the children at Sandlebridge are especially liable to tuberculosis, but their lives are lived under conditions especially unfavourable to the development of this disease. Tredgold states that, in conjunction with nervous abnormality, these two factors, alcoholism and tuberculosis, have a great importance in the causation of idiocy, imbecility and many other morbid conditions of the nervous system.

My conclusions concerning tuberculosis as an inherited factor are similar to those regarding alcoholism, though I am inclined to the opinion that tuberculosis is more likely to have an effect than is alcoholism.

Syphilis.

It is almost impossible to get reliable statistics of the effect of syphilis acting as an ante-conceptional cause in the production of mental deficiency. Most of the authorities on the subject say that it has very little effect, and certainly as far as statistics go this seems to be the case. Statistics as regards syphilis are generally quite useless because few parents will admit that they have had the disease.

We know a great deal about syphilis as a disease and as a disease that may pass from mother to the child in utero, but this is not true

inheritance, and we know very little that is definite about the effect of syphilis on the inheritance handed down.

As a disease syphilis produces great anæmia and debility, and often has a selective action on the nervous tissues, but we have no evidence to prove that it has any action on the germ-plasm. Syphilis often produces death or disease of the foetus, and a child born apparently quite well may develop the disease; but this is not evidence that the germ-plasm is affected. Children born later to the same parents are less likely to be affected, and the fact that they can be quite well-developed when born shows that the innate power to develop is not impaired. The fact that the disease may delay its appearance till a short time after birth is not due to inheritance of the disease but to direct infection of the child in utero from the mother.

A recent article (Dean) shows that a large proportion of idiots show the Wasserman serum reaction, which is thought to be limited to cases with syphilitic infection, but there is, up to the present, no proof that congenital syphilis can poison or deform the germ-plasm so that the inheritance is altered and the third generation affected.

As we said before much has been written of alcohol, tubercle and syphilis as causes of feeble-mindedness, but it has never yet been shown that districts or countries, where these factors

are more prevalent or increasing, have a larger or increasing proportion of feeble-minded persons; nor, as Ireland points out, has it been shown that more feeble-minded children are born at periods of the year nine months after the times when drunkenness is common (such as the New Year in Scotland).

Statistics bearing on these points would be of great value if they could be found, but it is not easy to exclude fallacies. The insertion of the term feeble-minded in the last census and considerable misunderstanding as to its meaning led to the inclusion under mental deficiency of a larger proportion of the population than had previously been the case, so that there was an apparent increase in the numbers of the mentally deficient.

On the other hand in countries where there has been a decrease in factors like alcoholism there has been no corresponding decrease in mental deficiency.

Another point that only serves to emphasise further the unreliability of statistics is that there is no standard system of registering mental defect. The proportion registered depends largely on the number of institutions or organizations in any one district or country. The numbers tend to increase with the registration of school cases, so that nobody can prove at present that the proportion of feeble-minded to the population is increasing.

These arguments point to the fact that statistical evidence of the effect of vitiating disease or habits in the parents as an inherited cause of feeble-mindedness is quite inconclusive and unreliable, but that the effect of the neuropathic inheritance as the real cause of feeble-mindedness of the primary type is probably great.

Evidence based on individual cases is, if anything, still more convincing. It is easy to quote scores of instances where a feeble-minded woman or man has handed down the trait so that it has persisted through generation after generation. Examples such as that shown in Diagram II. (p. 214) are common.

It is only right to give great importance to the statistical side of the evidence, but surely the evidence of these and other numberless cases, where feeble-mindedness can be traced like a black stain from one ancestor through many generations, counts for a great deal. However, it does not greatly matter which of the two kinds of evidence we consider to be the more important, for both lead strongly to the conclusion that primary feeble-mindedness is always inherited, and that the acquired conditions, if they have any effect at all, act merely as secondary factors.

At the same time these conclusions agree with the accepted theories of heredity, and do not rest on the supposition that acquired characters can be inherited; many of the arguments advanced

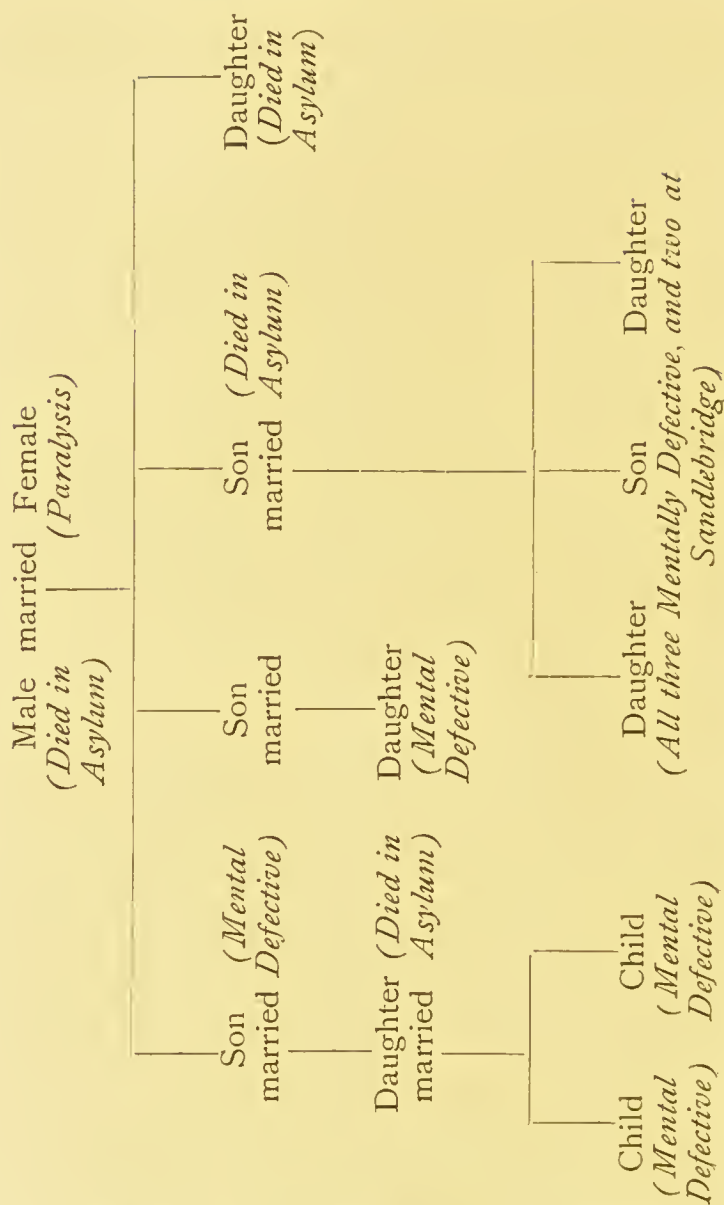


Diagram II., showing the inherited nature of feeble-mindedness.

from time to time as to the causation of feeble-mindedness do rest on such a supposition.

(C) SOCIOLOGICAL FACTORS. CONSANGUINITY.

Consanguinity is one of the traditional causes of feeble-mindedness, and there is much to be said against the marriage of blood relations. Such inter-marriages certainly increase the likelihood of the appearance of any undesirable traits that may exist in the family. As Sanem says, "*La consanguinité élève l'hérédité à sa plus haute puissance.*" In spite of this such marriages are not a common cause of feeble-mindedness, simply because they do not very often take place, and also because there is not always an undesirable trait to be intensified.

Ages of Parents.

The ages of the parents may have some effect. In the Mongolian form of mental deficiency there is strong evidence to show that there is an exhaustion of the reproductive powers of the mother. Mongols, however, do not form a large proportion of the feeble-minded. Possibly after the usual child-bearing period there is a greater liability with increasing age to bear defective children, but only because there is an inborn taint which has more chance of coming to the surface when the reproductive powers are weakened. Dissimilarity in the ages of the parents has very little effect, and it is not found

more often in families containing feeble-minded children.

Illegitimacy.

There is little doubt that a greater proportion of illegitimate children are feeble-minded, but this is not due to the fact that they are illegitimate. It is because the mother is often feeble-minded, and for that reason has been the more easily led astray.

In the same way a history of a tendency to suicide simply means that there is a tendency to unstable mental balance in the family.

Cancer.

There is no evidence to show that cancer is a cause of mental defect, and it is only mentioned because fallacious statements as to its effects are sometimes made. Cancer could only act as a poisoning and weakening agent, and we have already seen that such conditions have little effect on the germ-plasm. Moreover cancer occurs late in life after the children have been born. In 3·8 per cent. of my cases there was a history of cancer, a proportion that is no larger than would be found in any list of family histories.

Conclusions as to Inherited Factors.

(1) A family taint of mental deficiency, insanity, or epilepsy, constituting what is known as the *Neuropathic Inheritance* is the underlying

cause of primary feeble-mindedness (90 per cent. of all cases).

(2) Other factors such as ante-conceptional parental alcoholism and tuberculosis may have some effect as accessory factors in the production of feeble-mindedness, if they are present in conjunction with the Neuropathic Inheritance; but there is no conclusive evidence to show that this is the case, and, acting by themselves, they probably cannot have much effect in the causation of the primary type of feeble-mindedness.

CHAPTER XII.

CAUSATION OF FEEBLEMINDEDNESS. ACQUIRED FACTORS.

Acquired factors may affect the fœtus in utero and the child during or after birth.

They can be tabulated as follows :—

Acquired factors.	{	Ante-natal acting before birth.	{ Abnormal conditions of :—	
			1. Mother during pregnancy.	{ (a) Mental shock and stress.
				{ (b) Physical Injury.
			2. Fœtus.	{ (c) Disease :— Alcoholism, Tubercle, Syphilis.
				{ (d) Age.
	{	Natal acting at birth.	{ Injury, disease, especially of the brain.	
			{ Abnormalities of labour such as prolongation with resulting congestion or brain extravasation of blood.	
	{	Post-natal acting after birth.	{ Convulsions or injury at birth.	
			1. Cretinism or deficiency of the thyroid gland. 2. Epilepsy and convulsions. 3. Sense-deprivation. 4. Injury. 5. Infectious fevers.	
			6. Brain disease	{ Meningitis. Syphilis. Tumour or abscess. Sunstroke.
			7. Mental shock.	

ANTE-NATAL.

(1) *Abnormal conditions of the mother during pregnancy.*

(a) Mental Shock and Stress.

In about 10 per cent. of cases there is a history of abnormal mental conditions of the mother during pregnancy. It is not uncommon for mothers to attribute the mental trouble in their child to some shock or fright they themselves have sustained during pregnancy, but there is little doubt that such shocks in themselves have only a small effect on the foetus, and in any case the liability to these shocks often points to an unstable nervous system in the mother. Ballantyne discusses the literature of this subject and comes to the conclusion that mental impressions have little effect on the foetus. Very often such mental shocks gain an exaggerated importance each time the mother repeats her tale, and many of the shocks are sustained late in pregnancy long after the foetus has been formed; a point which should be thought of when mental impressions are said to have caused physical deformities resembling in nature the origin of the fright. Continued anxiety and mental stress acts on the mother as a debilitating factor.

(b) Physical Injury.

Physical complications are much more likely to have an effect. A fall or injury to the mother may well injure the foetus. Pètersen found in

some children post-mortem signs of an old brain lesion, that must have caused death had it occurred while the child was leading a separate existence. But these cases, if mentally affected, generally show the result of their injury in physical disabilities and form the cerebral diplegic type of feeble-minded children.

(c) Disease.

Any of the general constitutional diseases or other debilitating conditions attacking the mother may have a toxic effect on the embryo or foetus if it presents any weak points to their attack and if the attack comes early in intra-uterine life. In this connection an inherited instability of the nervous system in the embryo might possibly be a weak point offering a poor resistance to any toxin, especially if that toxin had a selective action on the nervous system.* But practically it is very doubtful whether these abnormal conditions of the mother during pregnancy have any effect at all on the development of the brain of the embryo even when this inherited instability is present. A history of such disease is quite common in the mothers of sound and healthy children, and alcoholism and tuberculosis are examples of these constitutional debilitating conditions, but feeble-mindedness is not more common where these are worst. In discussing the effect of alcoholism during pregnancy there is much to be said on either side and a full account can be found in the

* See Wasserman reaction, p. 211.

British Journal of Inebriety, January 19th, 1909. Dr. Potts, in that discussion, attaches much importance to maternal drinking during pregnancy as a potent influence in the causation of mental degeneracy.

But on the other hand statistics can be found showing that there is no relation between mental and physical weakness in the children and drinking in the mother. (Mem. X. Eugenics Laboratory.)

Experimental evidence shows that alcohol is a poison to the tissues, but that does not prove that it can pass from mother to foetus and arrest development; and, often, the very fact that the mother drinks is evidence that she comes from a neuropathic stock.

The only decision to which we can come is that there is no conclusive evidence on either side, and we can but infer that alcohol as a cause of feeble-mindedness acting (1) on a foetus untainted with neuropathic heredity, probably has no effect in altering or arresting development, but acting (2) on a foetus already so tainted and possessing a weakened nervous system, its toxic influences may possibly have a determining and secondary effect.

Active tuberculosis in the mother during pregnancy does not mean that the child will be weakened physically, since children born under such conditions are often quite well-nourished and, if effectively protected from infection,

develop normally. Evidence points to the fact that the tubercle bacillus only passes from the mother to the foetus in very exceptional instances. We have already seen that mental degenerates show a weak resisting power to tuberculosis and we conclude that, with tuberculosis as with alcoholism, there is little reliable evidence to show that either, acting on the mother during pregnancy, can determine feeble-mindedness in the child.

(d) Age.

The age of the mother may have some effect but many deficient children are born early in the family. Mongolian imbeciles are often the last children of a large family, and it has been suggested that this condition is the result of a wearing out of the reproductive powers of the mother by repeated pregnancies.

(2) *Injury and disease of the foetus.*

Injury and disease of the foetus during intra-uterine life are not common causes of feeble-mindedness. We have previously described how sometimes the foetus may sustain an injury to the brain that would have caused death if the child had been living a separate existence, and how such injuries may cause the type of mental deficiency known as cerebral diplegia; but these cases are comparatively rare.

NATAL CAUSES.

Factors acting at birth such as prolongation

of labour, protracted pressure, asphyxia neonatorum and injury have little effect in the causation of the ordinary or primary type of feeble-mindedness. They may cause a comparatively gross lesion of the brain and some accompanying physical deformity, but such cases belong to the secondary form and constitute a special type. Difficulties at birth may or may not be noted in taking the history, but they are not more common in the histories of feeble-minded children than in those of ordinary children, and they are often given an exaggerated importance by parents anxious to explain the mental state of their child.

Prematurity may give a greater liability to physical weakness, but is not necessarily a handicap to mental development.

POST-NATAL.

(1) *Cretinism.*

Cretinism, due to deficiency or loss of the effect of the secretion of the thyroid gland, is one of the special types of mental deficiency and has already been discussed in Chapter V.

(2) *Epilepsy and convulsions.*

Apart from epilepsy, infantile convulsions are common in the feeble-minded.

Convulsions are paroxysmal attacks characterised by irregular and purposeless contractions of the muscles and usually accompanied by

unconsciousness. Since attacks of abdominal or other pain may be mistaken for slight convulsions, and since convulsions are often a terminal event in fatal diseases, it is not always easy to obtain a reliable history from the parent. Quite a number of mothers regard convulsions in infancy as inevitable or at least of no importance, but severe ones are, as shown below, really rare in infants of good family history. McIlraith regards them as uncommon unless there is a hereditary disposition. Ashby, referring to the causation of convulsions, said, "the hereditary disposition to convulsions is probably the most important factor."

Severe infantile convulsions are more common in the families of persons tainted with feeble-mindedness, but they are the result rather than the cause of the brain condition.

If an epileptic child is feeble-minded (or if a feeble-minded child is epileptic) the two conditions are not in the relation of cause and effect but are both congenital, with the exception of those cases in which the fits are due to meningitis and are not truly epileptic.

(3) *Sense-deprivation.*

Sense-deprivation may be the cause of considerable dullness or of slow development, since some of the avenues for the passage of sense-impressions to the brain are cut off. However, it has been abundantly proved that it needs more

than the greatest degree of blindness or deafness to produce mental deficiency if proper education can be provided, and the wonderful achievements of Miss Helen Keller are amongst the strongest evidence in support of this. Of course absolute deprivation of all the senses would leave no avenues to the brain, but the point to be appreciated is that neither deafness nor short-sight of any degree causes real mental deficiency.

(4) *Injury.*

Too much importance must not be given to a history of injury because parents, when trying to explain the mental condition of their child, usually give an exaggerated importance to some fall or blow which they consider to have been the starting point of all the trouble.

Again a fall may be caused by the first epileptic fit and yet the history given is that of a fall followed by fits. If the fall or blow is followed by unconsciousness for some time with a temporary or permanent paralysis, it may be more important, but such cases are very uncommon and the history should be examined for hereditary taints.

(5) *Infectious fevers.*

An infectious fever does not cause ordinary feeble-mindedness, and when the mental condition has definitely followed a condition like measles or scarlet fever, as in the cases quoted below, it is due to toxic or inflammatory

processes acting on the brain. In many cases there was mental deficiency before the attack of fever, which had attained an exaggerated importance in the mind of the parent. An infectious fever may cause sense-deprivation, but this has been discussed above.

W. F., age 5 years; family history negative; child is mentally deficient and the condition is said to have followed an attack of measles at the age of $3\frac{1}{2}$ years, the child being normal before the illness.

(6) *Brain Disease.*

Inflammatory and destructive processes in the brain or its protecting membranes may give rise to permanent mental deficiency, but such cases usually show evidences of physical disease in addition. The pressure of the fluid in hydrocephalus or contraction of scar-tissue in the brain may affect the sensory centres.

Congenital syphilis acting on the child may produce degenerative processes in the brain, but such cases are rare, and generally the disease can be more or less cured by treatment so that there is little mental dulling.

Sunstroke was said to be the cause of the mental trouble in one of my cases, but it is a very rare condition in many parts of England.

(7) *Mental Shock.*

Mental shock is sometimes given as a cause, but only a hereditarily weak brain would be affected in this way.

Impoverished conditions of the blood, rickets and poor general health may have an effect on mental development but produce backwardness, not feeble-mindedness.

Conclusion.

Everything points to the conclusion that the acquired causes have probably little effect in the causation or the determination of the ordinary or primary type of feeble-mindedness, though they may directly cause some of the special types, such as the cerebral diplegic or the hydrocephalic. Primary feeble-mindedness is inherited and is a failure of development, the brain being irretrievably deformed owing to an inherent defect in the germ-plasm; therefore acquired causes, either natal or post-natal, can have practically no effect, and, even the ante-natal causes acting on the mother during pregnancy, can, in all probability, only act as accessory conditions.

CHAPTER XIII.

PREVENTATIVE MEASURES AND GENERAL SOCIAL
CONSIDERATIONS.

(1) LIFELONG CARE ESSENTIAL.

We have seen that lifelong care is essential, and that the most forcible argument in its favour is that every feeble-minded person, who is not under restraint, is a menace to the community; not only is such an individual very likely to become a so-called criminal, drunkard or prostitute, but also he or she may propagate and spread a taint that is wholly bad by having children, legitimate or illegitimate. Obviously it is a necessity to prevent these unfortunate persons from coming into contact with those who are ever ready to take advantage of the weak-willed and also to prevent them from becoming a prey to temptations which, by reason of their inherent weakness, they are naturally unable to resist. Furthermore, surprising progress is often made under good tuition. The body and mind can generally be trained to some occupation which is useful in that it exercises the mind and trains the muscles. Later the child or adult learns to be of use in a workshop

or farm, and in many instances to manufacture articles such as boots, clothes, mats and cord or to do other useful work.

Feebleminded children when occupied are probably happier than other children—happier in that they are simpler, more easily amused and are burdened with fewer worries; but they fall very low when no attempt is made to exercise their minds and bodies, and form a sight and example that often has degrading and demoralising influence on those around. It is a very noticeable fact that a child who has had training and has then passed out of supervision, soon goes downhill mentally and physically, since absence of occupation has a far greater influence on the feebleminded than on the ordinary child in leading to bad habits, dirtiness and moral degradation.

Efficient supervision and care should enforce (1) constant occupation, and (2) absence of temptation or of bad examples. Feeble-minded persons are so easily led that they quickly copy bad examples and thus develop bad habits. On the other hand if they are kept free from all vicious influences they are just as readily guided into lines of good conduct. All schemes for treatment and training must be based on these principles and on the fact that feeble-mindedness is not curable, so that training increases rather than diminishes the dangers unless permanent supervision is enforced.

(2) COURSES OPEN TO PARENTS OR OTHERS WISHING TO PUT A FEEBLEMINDED CHILD UNDER CARE UNDER PRESENT CONDITIONS.

Parents or guardians who wish to put their child under efficient care have several courses open to them:—

(1) To pay for the maintenance of the child at one of the large asylums or at a private or a charitably-supported institution.

(2) If they cannot pay the fees, they can apply for the admission of their child as a non-paying patient to one of the asylums to which such cases can be elected. But the accommodation for non-paying cases is limited, and it is very difficult indeed to get sufficient votes to elect a child to such institutions.

(3) They can apply to the Poor-Law Relieving Officer, who reports to the Guardians. The child is taken to see the Poor-Law Medical Officer, or he calls to see it, and reports upon its condition. One or other of the parents has to appear and make a statement regarding the condition of the child before the Guardians, who then decide whether they are able to take charge of it. If they do so, they usually take it into the workhouse and may make other arrangements later. If the child is dangerous or violent, the parents can claim to be relieved, but otherwise they are largely dependent on the view of the case taken by the doctor and the Guardians. Practically accommodation of this nature for

feeble-minded children as distinguished from lower grade cases is very small.

(4) They may keep the child at home. This is what happens in most cases and the results are very bad. Of course if they are in a position to provide a tutor or companion, it is a different matter, but even then provision must be lifelong and a feeble-minded child is better with others than leading a solitary life.

(3) SUGGESTIONS FOR LIFELONG CARE.

It is only necessary to emphasise one or two points in the scheme suggested by the Royal Commissioners.

First, it is very important that feeble-minded children should come under control at an early age before they have learnt bad habits and while their mental faculties, permanently crippled though they are, can yet be developed and trained on the right lines. To ensure this it is necessary :—

(1) That feeble-mindedness should be diagnosed early and the parents should be told how to care for and train their child.

(2) That, as soon as it is old enough, the child should come under the care of skilled teachers so that its mental powers may be developed as much as possible. This may be brought about either by admitting the child into a residential

institution for lifelong care or by sending it to a special day school.

Therefore an extension of the special school and of the residential home or colony systems is desirable, and the two should work together.

If children are to be trained at special day schools, some organization for lifelong care and control of those leaving is essential. There is no doubt that state-supported industrial colonies are the best from the point of view of efficient care and prevention of the propagation of feeble-mindedness, but it is doubtful, for economic reasons, whether it would be possible to provide colonies for all the feeble-minded. In *chosen* cases a system of wardship under suitable guardians, who would exercise efficient supervision, might be adopted, but, outside institutions, efficient supervision is very difficult indeed. It must always be remembered that the feeble-minded need at all times to be carefully guarded from temptations, and the number of cases that could be provided for in this way could never be more than a very small proportion. Boarding-out of feeble-minded children, as it has been done in the past without efficient supervision, can be whole-heartedly condemned, and the work of the After-Care Committee in Birmingham shows how little hope there is of feeble-minded persons retaining a wage-earning post.

(4) SIZE OF FAMILIES CONTAINING FEEBLEMINDED CHILDREN.

The parents of feeble-minded children are as a rule slightly more prolific and have larger numbers of children than the average.

In 500 families (some of them not complete), each containing one or more feeble-minded children there were 3,018 children, an average of 6 to each family. The average number of children in the families containing Mongols was about the same and these families are notoriously large. In England thirty years ago the average number in a family was stated by the Registrar General to be 4·6, and it is probably less now, but we must not forget that the Registrar General's Report included all classes, while the other figures are taken from the lower classes, where large families are much more common.

The Eugenics Laboratory Memoirs X. states that the average size of the families in Edinburgh is 6·11, and that of Manchester families containing mentally deficient children 6·14.

From these figures it can be seen that the families containing mentally defective persons tend to be large rather than small and that a considerable number of the mentally defective survive.

(5) LIKELIHOOD OF THERE BEING OTHER FEEBLE-MINDED CHILDREN IN A FAMILY CONTAINING ONE SUCH CHILD.

A question of very great importance often asked by the anxious parent is: "Are future children who may be born to parents of a feeble-minded child more likely to be feeble-minded than the average child?" There is little doubt that they are more likely to be so affected, the proportion working out at 1 in 55 as against 1 in 80 of the ordinary Manchester children.

Dr. Still is of a different opinion, but the following figures prove definitely that families containing a feeble-minded child contain a greater proportion of similarly affected children than do ordinary families. In 1830 families containing feeble-minded children, 75 contained more than one. Therefore taking what from our former figures seems to be a fair average of 6 to each family and excluding the 830 feeble-minded children first mentioned, there were 75 feeble-minded in the 4,150 other children, or 1 in 55. In other words 9 per cent. of the 830 families contained two or more feeble-minded children.

Microcephalics were not included in these figures, and certainly in the case of these children there is a distinct probability that one or all of the other children will be affected. Families containing Mongols are an exception, and, unlike Microcephaly, it is very doubtful if two



PLATE XI. Three Brothers and a Brother and Sister, all Feeble-minded (Ordinary Type).

cases of Mongolism ever occur in one family. The Mongol is very often the last child of a large family and it is exceptional to find other children mentally affected; I have only met with one case, and, so far as I am aware, no other examples are on record.

To turn to other statistics, Tredgold, taking persons of all degrees of mental defect, found 245 idiots, imbeciles and feeble-minded in 150 families containing 1,269 children. This means that 1 in every 10 or 11 of the other children were mentally defective. Probably if it had been possible to conduct a closer enquiry into the mental state of the 4,150 children of the Manchester families containing a feeble-minded child, a greater proportion than 1 in 55 would have been found to be feeble-minded.

(6) SHOULD THE BLOOD RELATIONS OF CON-
GENITALLY FEEBLEMINDED CHILDREN
MARRY?

It must first be pointed out that in considering accidental or acquired feeble-mindedness there is no likelihood of handing down any taint and therefore there is no ban on marriage of the blood-relations; but with the congenital cases, which form by far the larger proportion, it is another matter, and there is no doubt that the marriages of blood-relations of such cases are attended with very great risk. The mating of the stocks may be such that the inheritance is

raised and the undesirable trait is bred out, but the taint may only be latent and the chief danger of feeble-mindedness is that the taint may spread and ramify through a large number of branches as in the family in Figure II. One thing is certain, namely that, if the relations of feeble-minded persons contract a marriage, both sides should have a full knowledge of the risk they run. For this purpose it is necessary that the general public should have a better knowledge of the possibilities of heredity and the dangers of improvident marriages. We can never hope for, and perhaps we should not be the better for, the attainment of the ideals of some of the most advanced advocates of Eugenics. We have to contend with a huge jumble of human instincts, human passions and especially human ignorance, and the masses care little for the teaching of science or the warnings of her greatest men. But with the growth of education, knowledge of the laws of heredity is becoming more widely diffused, and we can only hope that in the future the spread of such knowledge will increase and that the efforts at present being made to educate the public will bear fruit.

(7) ASEXUALIZATION.

This question is also a very difficult one to discuss. It is quite possible to judge of the results of asexualization because it has been tried extensively in America. The results there seem to

show that in bad sexual perverts and in those of debased habits, operative measures may at times bring benefit, curing the sexual perverts, eradicating bad habits and sexual appetite, and bringing about a great improvement in the health of the individual. Such cases should, however, be exceptional if the children come under control early enough, and such measures should not be necessary in institutions. Discipline, cleanliness and absence of suggestion is, in most cases, a sufficient safeguard.

The operation for asexualization in itself is not necessarily dangerous, but opinion against any such surgical measures is very strong and rightly so, one difficulty being that such an operation, if once adopted, might be unjustifiably extended or abused.

Asexualization might be necessary as a preventative measure, if lifelong care were not available, for there is undoubted danger to the community from the large numbers of feeble-minded who are not under supervision and who are specially liable to have illegitimate children or to make ill-advised marriages. But the disadvantages of such a procedure as asexualization are great, and lifelong supervision, which, though more costly, is so necessary for other reasons, should, if efficient, be an equally good safeguard against the propagation of the taint to future generations.

Finally, those who are working for these

unfortunate human beings and who, when the results of tuition and training are particularly disappointing, doubtless wonder whether they are really doing any good or not, must realize that all cases cannot be raised to such a level that they are able to do useful work. Teachers and others must be encouraged by the fact that any efforts that promote discipline and mental effort in the feeble-minded are of distinct value in keeping them from falling to low depths of degradation and vice. Surely it is worth an effort when we consider that, if left to themselves, many of these children, instead of being healthy and at least clean, become, not more like beasts than men, but worse than beasts. One has only to visit the houses of the cases rejected as too bad for the special schools to realise the truth of this and to be appalled by the urgent need of effective remedies.

SUMMARY.

(1) Efficient lifelong care and supervision is absolutely essential.

(2) The legal powers of controlling the feeble-minded are lamentably insufficient, and those which do exist are not used to their fullest extent.

(3) It is very difficult indeed for parents, who are unable to pay fees, to find accommodation for their feeble-minded child in any suitable institution.

(4) A system of special schools, colonies, and, in very few selected cases, wardship combined with universal classification and registration is needed, and for this teachers, visitors and other workers must be trained.

(5) The families containing feeble-minded children tend to be large.

(6) The remaining children in a family containing a feeble-minded child are more likely to be mentally defective than are children in other families; the Mongolian type of mental deficiency forming an exception to this rule.

(7) There is grave risk in the marriage of the blood-relations of congenitally feeble-minded persons even if they marry into a good stock.

(8) Asexualization is neither desirable nor necessary, if efficient permanent care is enforced.

Appendices

APPENDIX I.

ON THE TRAINING AND MANAGEMENT OF FEEBLE-MINDED CHILDREN.

MARY DENDY, M.A.,

Hon. Sec. Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded.

These notes are based upon the assumption that the children to be cared for are to be detained for the whole of their lives.

Not that the methods to be employed in this case should be different from those in use in good Special Day-Schools, but that the application of them will vary when we bear in mind that the object to be attained is, not merely to satisfy any examiner, however able, but to provide each child with some occupation which shall stand it in good stead when it leaves the School-room and has to take an active part in the little kingdom of which it should be a willing and a happy subject; and further to secure to each child that its bodily habits and condition shall be as good as is possible and such as will make it healthy in itself and prevent it from being an object of disgust or distress to other people.

Occupation is the key-note of success in

dealing with the mentally defective:—occupation, incessant, pleasant to the child, easily within its capacity, and useful in itself. From the time the boy or girl rises in the morning until it goes to bed at night he or she should be occupied. The day should be one succession of mealtimes, work and play. It is well to remember that, for the feeble-minded, all work may be made as delightful as play, and that our object is not attained until our children look forward to their daily business with as much interest as to their games or their dinners.

All the children retained in residential institutions should be busy and happy until the time comes when they are disabled by illness from taking their share of the work of their home. Then they should still be happy and good. If they have been properly trained it will make them easy to nurse and comfort when they are in the grasp of illness.

I have thought it well to put down at the beginning of these notes what are my views upon this subject.

Admission.

When a child is admitted to a residential school with a view to its remaining for life in the colony of which that school should form the foundation, the first thing to be considered is its bodily condition. Weak-minded children coming from poor homes are commonly in a poor

state of health. The doctor who passes the child as suitable for residence in the colony will satisfy himself as to any special weakness that requires attention, and will point out to the nurse or matron what he wishes to be immediately done for the child's physical benefit. There are, however, some troubles which it is for the matron rather than the doctor to set right.

So soon as the child has been examined and passed, it should be given a warm bath. Great care should be taken to do the bathing very gently. It must be remembered that many such children have never before had a bath and that it is, to them, an alarming thing to be put into water all over. If, however, they are allowed to feel the pleasant warmth of the water before they are completely immersed in it, and if their attention be distracted while they are being undressed, the difficulty can generally be got over. The water must, of course, be carefully tested to make sure that it is not hot enough to cause the least sensation of pain. A thermometer should hang in the bath-room for the purpose. The water should not exceed a temperature of 98°F. to 100°F.

It must be remembered that it is possible that the child may be insensitive to pain and might be severely scalded without crying out. A gaily-dressed doll or other toy should be within sight of the child and should be given to it when the washing and dressing are over. It must be

borne in mind that such children can be bribed with toys, long after the age at which normal children discard them. A Teddy Bear has sent to sleep many a little one who without it would have cried itself ill.

When the child has been thoroughly bathed and examined for any bodily defect that may have escaped notice during the preliminary examination, it should be warmly wrapped up and its hair should be cut quite short. Sometimes it may be better to cut the hair before bathing. It is frequently necessary to completely shave the head in order to get rid of vermin. If any lice are found on the body it will be necessary to destroy or, if they are good, to stove, the clothes in which the child was brought to the school. In any case, if lice have been found, the child must not be put back into its own clothes, however clean they may appear to be. It often happens that the child has been re-dressed for its journey in clothes given by some charitable person, without having had its body washed.

A warm and comfortable meal should follow on the bathing, and it is to be hoped and, in some cases, expected, that the little one, worn out with all the experiences of the day, will go to sleep as soon as it is put to bed. It is likely that it has never slept in a bed by itself before, and this may prove a source of distress to it. Care should be taken to place it in the dormitory

between children who will speak kindly to it should it feel frightened:—unless, indeed, it should have been heard swearing or using foul language whilst being dressed. In that case it is best to place it between two of the dumbest and least observant of the children in the room. Sometimes it is necessary to isolate a child for a time in a sick-room or hospital until it has forgotten its bad habits of speech.

On the day succeeding its admission the child will go to school and its life at the Colony will have begun.

Food.

With few exceptions it is possible and desirable to insist upon all the children in a colony, young and old, eating the food which is provided for their table. It is very usual for parents to say: "My boy cannot eat this or that article of diet." No plea for differential treatment in this matter should ever be admitted without very good reason. (Such as that vegetables or porridge or jam cause diarrhœa.)

Tea, coffee and alcoholic stimulants should be absolutely avoided except as medicines or, in the case of tea or coffee, as a very rare treat. It is a great pleasure to a child who is a little out of sorts to have a cup of tea, with bread and butter cut rather thinner than usual.

Meat should be given in small quantities, and what is given should be made into a stew or

broth and poured over the vegetables. Some people prefer to give meat minced; in any case it should be in a form which does not make it difficult to masticate.

A good and sufficient dietary is the following :

Breakfast.—One morning, porridge and milk and the next bread and milk. Bread and butter to follow if the child is still hungry.

Dinner.—Two or three vegetables, including potatoes, with a stew or broth poured over them. Bread to eat with them. Pudding to follow, either milk pudding, jam or suet roll, or stewed fruit. Sometimes milk pudding and fruit may be given together.

Soup, fish and baked beans,* instead of meat, may each be given once a week so as to secure variety.

Tea.—Bread with butter, jam or treacle. Lettuce when available; milk to drink. It is well to insist upon the bread and butter's being eaten before the bread and jam is attacked.

It is necessary to note that it is not safe to allow all children to eat as much as they like, even of plain food. A case is on record of a boy who ate ten rounds of bread from a four pound loaf.

Boys going out to work should have a lunch of bread and cheese to carry with them. Girls

*The beans are baked with bacon, after the Boston receipt.

working in the laundry should have a lunch of hot milk with a very little coffee and bread and butter. This exception is made because the girls see the women who work with them have this lunch and think a great deal of being old enough to have it also. It is easy to make the coffee so weak that the children are drinking almost entirely milk. Should any child coming in from work not eat his or her dinner, it is well to stop the lunch for a day or two.

If the children have a pint and a half of new milk a day each, in addition to solid food, we may be sure that they are not underfed. In winter, cocoa may sometimes be substituted for milk.

Children should feel at liberty to ask for a piece of bread and butter at any time; but they must not be encouraged to eat between meals and then to play with their food at regular meal times.

With regard to the eating of sweet things such as toffee, chocolate and the like, care should be taken that all sweets given to the children are wholesome. Relatives and friends often bring sweets for the children in whom they are interested; these should be taken possession of by the matron, except just enough to make the child feel that he has had his treat. He should be encouraged to share all he gets with others. This is a safeguard against his having too much and a lesson against greediness. All food

should be nicely cooked and properly served. Table manners form an important part of the children's education. They should, from the very first, be taught to eat decently and not to be greedy. A good deal of trouble taken about this in the beginning will be well repaid.

Grace should be said quietly and slowly. The children should not begin to eat until they are told to do so. They must be taught to pass the plate to others before helping themselves and not to take the largest piece. It is a matter of some difficulty to teach them to hold their knives and forks properly and not to spill their food. All children should be given knives as well as forks so soon as they are able to use them.

The children should on no account be allowed to talk at table. It is sometimes urged that conversation during meals is more homelike than silence, but, where any large number of boys or girls are gathered together, conversation soon degenerates into chattering; voices are raised and the children shout one against the other. Confusion results from the noise and it becomes impossible for the attendants to supervise properly the manners and behaviour of their pupils. Moreover, children who are talking are likely to bolt their food without mastication; this is always a fault of the feeble-minded and is the cause of many of the small ailments from which they suffer; so far as possible it should be checked and the boys and girls should under-

stand that whilst they are at table their business is to eat, not too fast, but quietly and in orderly fashion.

At Waverley, Mass., U.S.A., the children's meals are served at tables accommodating ten each. The food is placed on the table in such an order that the attendant in charge can see at a glance whether it is all there. The attendants do not sit down, but move about the room helping and watching the children. It must be remembered that at Waverley all grades of mental defect are admitted. Even the very lowest are taught to eat fairly decently. Some of the high-grade boys and girls are told off to help the weakest of the low-grade cases, whose meals, it is unnecessary to say, are separately served in their own houses. The high-grade children, as in England, have table-cloths. The low grade cases have their plates or bowls placed at one end of a long napkin, the other end of which is tied round their necks like a feeder. In this way any droppings from the spoon or mouth are easily collected and removed after the meal is over.

At Sandlebridge we find it necessary to give some of our children feeders. Our children are served at long tables, covered with cloths. The first course is actually served in the kitchens and is carried into the dining rooms by children whose special duty it is to wait at table. The second course (the pudding) is served at table.

After a little trouble the children learn that they must eat everything which is set before them so that there is very little waste of food.

Care is taken that the older, or working children have larger platefuls than the little ones and that each child is suitably helped.

It is desirable that the Medical Officer should from time to time satisfy himself as to the quality and quantity of the diet given. Should it be unsuitable, however, the children soon show the fact by their diminished vitality and lower state of health.

Cod-liver oil is so much a food that it may be proper to speak of it in this connection. When winter sets in it is common to find that many of the children fail a little; they begin to have chilblains and look pale and out of sorts. Tempers begin to be tiresome. This may be taken as the signal for beginning to administer cod-liver oil. Almost all children like it, and as a rule they quickly show its good effects.

Dress.

It cannot be too constantly remembered that children who are weak in intellect are apt to be weak in body also. Especially they are apt to have poor circulations and to suffer from cold hands and feet.

It is hopeless to attempt to get any good work or good play from a child who is cold.

Clothing should, therefore, be ample. It

should not be too heavy nor should it consist of too many garments. For the boys great comfort and security against chills is obtained by putting them all into grey flannel shirts. (*It must not be supposed that flannelette will answer the purpose.*)

A clever matron will so arrange that the new shirts are taken into use at the beginning of the winter. In the winter also a waistcoat may be worn which can be left off in the summer. If this be done there will be no time of the year, in this climate, when flannel shirts will be too warm. Boys at school should wear a dark-blue jersey as their top-garment on week-days, with knickerbockers and long stockings. Working boys wear a coat instead of a jersey.

Dress for boys may be given as this :—School children.—Flannel shirt made long enough to come well over the hips; long black woollen stockings; cloth knickers, *without pockets*, lined with grey calico; cloth waistcoats and dark blue jerseys; strong shoes for the house and boots for out-door wear. Nightshirts should always be provided, with vests under them in cold weather. For Sundays cloth suits should be worn, with white collars and gay neckties. For very little boys it is worth while to provide sailor-suits. They do not cost more and look better for small boys than the ordinary knicker-suits.

For working-boys, corduroy suits should be provided if their work is of a rough nature;

otherwise, they may wear cord trousers or knickers (according to their height) and cloth waistcoats and coats, over grey flannel shirts. It is a tidy plan to have these big boys' shirts made with a turn-down collar. The trousers, which can no longer be so constantly washed as when the boys were little, must have linings of grey cotton, buttoned in; these linings need not come below the knees. Thick socks may gradually be given in place of the long stockings. Great attention must be paid to the fit and condition of boots. Clogs may be used for farm boys. Cloth caps are the best head-gear, except in very hot weather, when linen hats may be worn.

Nice Sunday suits should always be given, and the boys should be encouraged by every possible means to care for their personal appearance.

It is especially necessary, in the case of the little boys to take care that no part of the clothing presses unduly on the person. Bad habits may be set up merely by the fact that the child is wearing a pair of knickers which are too tight for him.

Warm great coats or capes should be provided for use in wet weather.

Girls should have warm woollen vests next to the skin; the garment next to that should be a pair of thick cotton combinations. Over this should come a good flannel petticoat with a body

to it. Then a stuff petticoat. In this climate, nothing is better for ordinary wear than blue serge frocks. These should be prettily made and protected by cotton pinafores or aprons, according to the age of the girl. All girls will require three frocks:—one for school or afternoon, one for work and one for best. No stays are necessary or desirable except in the case of some special deformity which is to be helped or corrected by special corsets. Vests must be worn under nightgowns in the winter. Warm capes should be provided for cold weather. Jackets do very well for some children, but where the child has a difficulty about dressing it is a saving of time and trouble to use a garment for outdoor wear that has no sleeves. Grown-up working girls require cotton working-dresses. The greatest difficulty about the girls' dress, from the point of view of neatness, is as to the finish of the frocks at the neck. A good plan for working-dresses is to have them made with a little turned-down collar. In any institution for girls many gifts of clothing will be received; these may be utilised with advantage; there is no object in having all dressed alike; care, however, must be taken that uniformity of warmth is secured. Long woollen stockings should be provided, and good, well-shaped boots and slippers, with clogs for laundry girls. Hats are a difficulty when heads are peculiar in shape and size. Gay cloth caps (red and blue) are the

most satisfactory on the whole. If there be any very hot weather, linen hats may be used.

All feeble-minded children, boys and girls, should be encouraged to pay much attention to their persons, and vanity should be cultivated as a saving grace.

Dormitories.

These should be warm and airy and well lit. They should be very easy to keep clean, and therefore should be so constructed and of such materials that any dirt is likely to be visible. If possible, a tiled dado, in a bright colour, is good; it is both sanitary and decorative. A bright linoleum on the floor, regularly treated with ronuk or some equivalent, is desirable. Polishing this is one of the earliest forms of work that the children can be put to. A line of little boys or girls can quickly polish a large floor-space and will enjoy doing it.

Whilst the children are young, it is best to have nothing in the dormitory but the beds and the necessary chamber utensils. All the children should be washed in a lavatory. *Beds must be warm and comfortable: it must always be remembered that nothing so conduces to the wetting of beds as cold.* The best thing for the children to lie upon is very thick felt over a wire mattress. (The felt sometimes sold for this purpose having become very expensive, an equally good effect may be obtained by putting

two thicknesses of ordinary felt together, secured by eyelets at the corners through which strings are passed to tie the felt to the bedstead.) Under the felt should be strong brown paper, both to preserve it and for extra warmth. Over it should be a thick brown blanket; then come the sheets (brown Bolton sheeting is the best, it is soft and warm). Then should come as many blankets as are necessary for warmth and then the quilt. The pillow should be low. Bolsters are not necessary. In the "sick-room" mattresses are desirable.

Windows should be open all night all the year round. If open fires are used these should be lit in time to warm the dormitory thoroughly before the children go to bed and then allowed to go out.

There should be a bright picture or two in the dormitory and a few toys on the mantel-piece.

Dormitory discipline is very important. The children should begin on admission to learn to fold their clothes neatly and lay them in a pile at the foot of their beds. It often takes a long time to teach this, but when it has been successfully accomplished the child has learned several important lessons; how to use its hands and eyes, how to copy what it is shown, and, not least, it has achieved the beginnings of neatness.

The children must also learn to make their own beds. Every bed must be quite stripped every day. Each child while small should make its

own bed ; it would be a pity if any one missed so practical a lesson. When they are older it is a saving of time and trouble to allot the dormitory work to special children.

They must learn that they are never to leave their beds without necessity. Also they must be taught that they must leave them when it is necessary. Children often wet their beds from sheer laziness or because they are afraid to get out of bed in the dark. If a child wets its bed, it must be regularly got up the last thing at night before the attendant finally leaves them. Children soon learn to get out of bed, almost without waking, so soon as the light is turned on. No pains should be spared to cure the bad habit of wetting the bed. It is undoubtedly impossible to get it under in the case of many imbeciles, but almost all children who are able to learn to wash and dress themselves can be made to be clean in their habits. Judicious punishment will often work wonders, just as it will in the training of an infant ; but it must be remembered that the punishment, to be effective, must follow close enough upon the offence to be connected with it in the child's mind. It is a good thing to give children who wet their beds their last drink somewhat earlier in the day than the others. A sharp run just before retiring, or other exercise such as skipping, which will induce a light perspiration, is helpful. If punishment, encouragement and other simple

means fail, the doctor's assistance should be asked. I have known one boy, suffering from kidney trouble, who was much benefited in this respect by wearing a flannel bandage round his body. A light should be always kept burning at night for young children and those who are liable to be taken ill.

Should a child constantly and incurably pass fæces under it in bed it will probably turn out to be an imbecile, and suitable rather for an Asylum than for a school for those who are technically named feeble-minded.

Talking or playing in bed must be rigidly discouraged; the children should learn that they go to bed in order to go to sleep. Nothing should be taken to bed except, in the case of little ones, a toy or doll to hug.

When the attendant goes the round at night he should observe whether the children are lying with their heads properly uncovered; the children should not be allowed to burrow to the foot of the bed and bury themselves in the bed-clothes.

Bath-rooms and Lavatories.

Bath-rooms should be as ample in space and accommodation as circumstances will permit. It is often a matter of some difficulty to get all the children in a large home bathed often enough, especially when some of them have to be bathed much more frequently than others. At Waverley, Mass., only shower-baths are used. It is a plan that has undoubted advan-

tages. Care must be taken from the beginning to make all the children observe decency in their bathing. One of the most marked signs of a weak intellect is a willingness to expose the body improperly. Especially with the older girls it is impossible to take too much trouble about decency and privacy in the care of their persons. Where there are two or more baths in a room a screen should always be used so soon as the girls approach womanhood. Whilst they are still quite small they can be taught never to entirely expose their persons. They should learn to put on their night-gowns before they altogether remove their day clothing and to wrap themselves in their towels directly they leave their baths.

All children should be bathed often enough to secure cleanliness. It will be found an advantage to have in the bath-room small tubs in which the feet and legs may be washed without giving a complete bath. Especially boys who are out at work will get their feet very dirty.

With the young children it is a good plan, on the days when they are not having a bath, to give them their strip wash in the lavatory before tea. They can then go to bed immediately after tea and prayers are over, and the attentions of the persons looking after them can be more easily devoted to getting them properly to bed than when they have to look after their washing and also after the bathing of those

whose bath-night it is. Teeth should be cleaned at night. How to manage tooth-cleaning and to keep tooth-brushes clean and in nice order is always a problem. At Waverley the brushes are kept in a frame pierced with a hole for each brush. The attendant stands with the frame and each boy or girl comes for his or her brush and after using it returns it to the attendant.

At Sandlebridge we use a row of clips or a pierced frame above the basins in which the children wash. It is significant that the boys wear out only half as many brushes as the girls.

Heads are an endless difficulty; however carefully they are cleansed and watched there is always the difficulty of possible re-infection from a visiting parent or friend. It is, of course, nice to be able to allow the girls to wear their hair long; but it is a question whether the advantage gained in appearance is not out-weighed by the endless trouble given if infection creeps in. Also, leaving that aside, there are very few girls who can learn to take care of their own hair; and it is a great addition to the work of the staff to keep many heads of long hair in neat and pretty order. A very pleasing result may be obtained by giving the girls who have their hair short, bright-coloured bows of ribbon on elastic to wear.

If the children's heads are perfectly clean it will not be necessary to have in use a comb and brush for each one. There are advantages in

having only so many in use at once as are wanted for the nice keeping of the children's hair. Both combs and brushes are frequently broken, and it is by no means easy to keep up a constant supply in a large home if each child has one. When only a limited number are used they can be replaced as soon as they are spoiled.

Needless to say that a sore head, skin trouble or eye trouble necessitates a separate brush and comb kept where it is inaccessible to the other children.

The same remarks apply to towels. Probably there are as many ways of managing these details of the toilet as there are institutions. One thing is certain, if the child be completely cleansed immediately after admission, all subsequent arrangements of this sort are much easier than they otherwise would be.

Whether the child has its own towel or no, the towels should never be allowed to remain very dirty. It is bad morally as well as physically for a child to use anything which is obviously unclean.

The bath-rooms and lavatories should be specklessly clean; the keeping of them so provides work for low-grade cases. Boys and girls of very small capacity can learn to polish taps and to wash tiles.

There should be a good supply of hot and cold water. If the taps are not of the kind that can be only turned on with a key by the atten-

dant, great care should be taken that the children do not have the chance to scald themselves with the hot water. Here, as everywhere in the institution, it is well to be on the look-out for an accident.

Offices.

Perhaps there is nothing in the care of the feeble-minded which calls for more attention than the use of the offices. Where, as in America, they are in the same room as the lavatories and attached to the dormitories, it is comparatively easy to see that the children use them properly. There is, however, so much to be said in favour of having them entirely removed from the dwelling-rooms of the house and of having them detached and separate, that this ease may be considered as rather dearly bought.

With regard to the little children it is not a bad plan to utilise the services of an older child. It must be made quite sure that this child is to be trusted. The offices must be sufficient in number and readily accessible. Two children should never be allowed to enter at once, except in the case in which an older child is acting as nurse.

So small a detail as the proper use of paper, without waste or untidiness, when achieved, marks a distinct advance in the progress of the child towards civilisation. Paper should always be hanging in each office, neatly cut and ready

for use. The cutting of this paper makes an occupation for a low-grade case. Big boys and small ones should not use the same offices. If a child appears to be poorly the first thing to be done is to make sure that it is not suffering from constipation. In order to do this it will probably have to be isolated in the sick-room or hospital for a few days so that it may be under careful observation. Decency in the use of the offices, as in bathing, should be carefully insisted on. If a child is careless and soils its clothes in using the office or from neglecting to use it, it is a good plan, supposing that he has the physical strength for the work, to make him wash out the soiled garments himself. It is often pure laziness that makes a child dirty in this way; sometimes, when they come from other institutions where there the necessity of training has not been realised, they are wilfully dirty. One boy said to the matron of his home at Sandlebridge, "I always have been cleaned up after, and you will have to clean up after me too." He had to alter his view of the subject.

Children can early learn to clean out their own offices; they must be taught that it is as important to keep these in nice order as it is to keep their day-rooms and even "Matron's sitting-room" neat.

Dining and Day-rooms.

Whilst the children are small it is important

to have separate dining and day-rooms for them, as they will have to spend bad weather indoors and must have somewhere to play. When they are grown-up and going out to work probably one large room will suffice. Both day and dining-rooms must be warm and light. All lights must be well out of reach of the children and open fire-places must be guarded. It is desirable, from the point of view of cheerfulness and ventilation, to have open fire-places, but care must be taken that the children do not hang round them too much.

Neither room should be over-furnished. There should be nothing in the dining-room but tables, chairs and pictures on the walls.

In the day-room there should be a good solid table, some chairs, and a cupboard for toys. There should also be a piano and a couch (very simple, a camp-bed, with a squab covered in American cloth answers every purpose) for an ailing child to lie down upon. Pictures on the wall and a few of the best toys on the mantel-piece complete all that is necessary for this room. It is, however, very good for boys and girls if there is a rocking-horse provided.

If the room should be for quite little children the large table may be dispensed with; little children like to play on the floor. There should however be several very small tables and little bent-wood arm-chairs which can be drawn close to the fire for an invalid or delicate child.

The floor should be covered with bright and cheerful linoleum and the walls should be light in colour. Too much stress cannot be laid upon the desirability of having all the rooms which are to be inhabited by feeble-minded children light, pretty and warm. It is a great mistake to suppose that it is more economical to have them ugly than it is to have them pretty.

The children should early be taught so far as possible to put away their own toys, and to realise that they must respect the property of each other. They must also be taught that they must share all the gifts that are brought to them by relatives and friends. Gifts of food must not be kept in the day-room, but must be immediately taken possession of by the matron and given out discreetly.

Wardrobes.

These should be ample in space and accommodation. They should be well ventilated, and it must be remarked that it is not a good thing to shut away the clothes, especially the cloth clothes, of the children. They are best hanging from an iron clothes-rail in the middle of the room. Wherever possible, a great deal of labour is saved by having the children's underclothes put away in separate pigeon-holes, labelled with the owner's name. This is especially desirable in the case of the bigger boys and girls, who can be made to put away their

own things and to keep their little cupboard tidy. When the girls reach womanhood, it will be found a good plan to give them certain privileges in this direction; perhaps a share of a little chest of drawers which may stand between two beds. Boots should never be shut up. They are apt to smell very unpleasantly if they are not exposed to the air. The best plan is to have a shelf or row of shelves, made, not solid, but of slats with spaces between them. It is exceedingly difficult to keep the children tidy as regards their feet. Buttons are always being wrenched off; laces are constantly broken and mis-applied. On the whole, boots that lace are probably the best and the attendant in charge will have to keep a supply of laces on hand and try to prevent their being converted into whiplashes, etc.

In voluntary institutions there is rarely any very large stock of clothes on hand; the sooner, however, that a reserve stock can be arranged for the better. It is economical to insist on order and neatness in the wardrobes. Time is lost when the attendant has to turn over a dozen piles of clothing before she can find what she needs. A stock list should be kept and brought up to date from time to time.

Kitchen, Store-rooms, etc.

It is not my purpose to say much about these. They will vary in every case according to the

size of the institution and the means at the disposal of the managers. It is worth while to remark, however, that here is the greatest opportunity for waste or for economy in the whole institution. A little waste every day makes a very great deal in the course of a year, and if the hearty co-operation of the servants who serve in the kitchen can be obtained, the successful working of the institution from a money point of view will be greatly helped.

In the kitchen, as elsewhere, the services of the children may be early utilised. They can wash tiles, clean taps, and wash up the utensils they have themselves used at meals. They can lay their tables and carry the food to the tables when laid. Strong working aprons must be provided for boys and girls working in the kitchen, and care must be taken that they do not wet themselves too much in washing floors, etc. It is very difficult to get them to remember that they must use a kneeler, but it can be done; pieces of carpet tied with string round the knees are good in the case of boys. Great care must also be taken to prevent them from having unguarded access to the fire. They are rarely timid enough or cautious enough to be trusted not to hurt themselves.

In any large institution the peeling of the potatoes is a serious business and is one that can be well done by the children themselves. Great waste, however, can be avoided by the use of a

machine for this work. At Sandebridge the use of such a machine has resulted in the saving of several loads of potatoes in a week. Moreover, it has provided a special kind of work for two boys who appeared to be useless for anything else. W.G.G. has a partially paralysed arm of which he has hitherto made very little use. He turns the potato peeler and has to bear all his weight on both arms as he does it. He is made to put the bad hand as well as the good one on the handle, with the result that it is growing visibly in size and is much stronger. His partner, L.P., was useless for any kind of work until this was found for him. He is improving in physique with the definite daily exercise. Both work under the direction of a high-grade boy, W.B., who attends to putting the water and the potatoes into the machine and afterwards carries them out to the different houses in a little hand-cart. These boys got so wet over their work that they are now covered completely with over-alls made of coarse strong material.

Utensils.

Cups, plates and basins should be of strong earthenware. Enamel is more durable but soon gets chipped and unsightly. Once chipped, it is difficult to keep it quite clean. It seems likely also that chips of the enamel getting into the children's food and being swallowed by them,

may be the cause of serious illness. Moreover, if a child drops a plate or cup and does not see it break, as in the case of enamel, he will be less distressed by the result of his carelessness and more likely to repeat it than if he sees the object broken to pieces.

The utensils, however, in use in the dormitory may be of enamel, if due care be taken to exchange them for new ones so soon as they are damaged in a manner that makes them insanitary.

It is well that the children should learn to take care of the utensils they use, but the process of learning will always be a costly one. The best punishment for carelessness resulting in a breakage is to make the child hand over the next penny he receives, explaining to him that someone has to pay for the new cup or plate.

The School-room.

It is most desirable that the School-house should be built quite apart from all the residential buildings of the colony. It is a great factor in the health of the children that they should be obliged to leave the house in which they live twice every day. It is not only that the fresh air lessens their liability to consumption, but also that it strengthens them in every way; especially they are less likely to take cold when they are constantly out of doors in all weather. Common colds are a great nuisance in an institution

and anything that lessens their frequency is a boon. It is also much better for the teachers to have the school-room quite apart from the living-rooms.

Should the school be under the Board of Education it will, of course, have to conform in space and general accommodation with the regulations laid down by that Board.

With regard to the decoration of the rooms, they cannot be too bright and pretty. Plenty of light, plenty of warmth, and plenty of floor-space are necessary. Care must be taken that the seats provided are comfortable and that a proportion of them can be readily moved. A number of small chairs for the very little ones or those who are deformed should be available. There should also be a couch or mattress, such as is provided in the houses, so that a child who is taken ill may lie down at once. If there are children in the school, as is too likely, who suffer from epilepsy, it is not enough after a fit that they should be able to lie down when they go home. They should lie down immediately and be allowed to sleep the effect of the fit off.

A good manual room is a great addition to the building. This room may be used also as a sense-room. Perhaps it may be well to explain what is meant by a sense-room. Probably few institutions, at least few voluntary institutions, could afford to have a fine room specially set aside for this purpose, but if that at Waverley

be described people can adopt the method if they think good.

Dr. Fernald has furnished this room with large tables which stand out from the wall into the centre of the room. There is one for each of the five senses; sight, smell, hearing, taste and touch. Against the walls are labelled cupboards for the necessary articles with which to test and train the child's senses. Thus, there are in the sight-cupboard a variety of objects, similar to the usual kindergarten bricks and models, but made at least three times larger than these. The brick is six inches in length by one inch square; the cones are six inches high; all are made on this scale. There is a great variety of models* and all are gaudily coloured in the primary colours and are made in duplicate. (Dr. Fernald has a box of bright-coloured building bricks in every house in his colony. The children themselves make these bricks.) The child stands at the table, on which the different models are set out; he is given, say, a red brick; it is large enough for him to grasp it easily and bright enough for him to see it clearly. He is told to move round the table until he finds another model exactly in shape and colour. If he be given a red star he must find another red star and bring it to the teacher and fit it into the star-shaped hole in the piece of wood from which it was cut.

* See photographs of models in use at Sandlebridge.

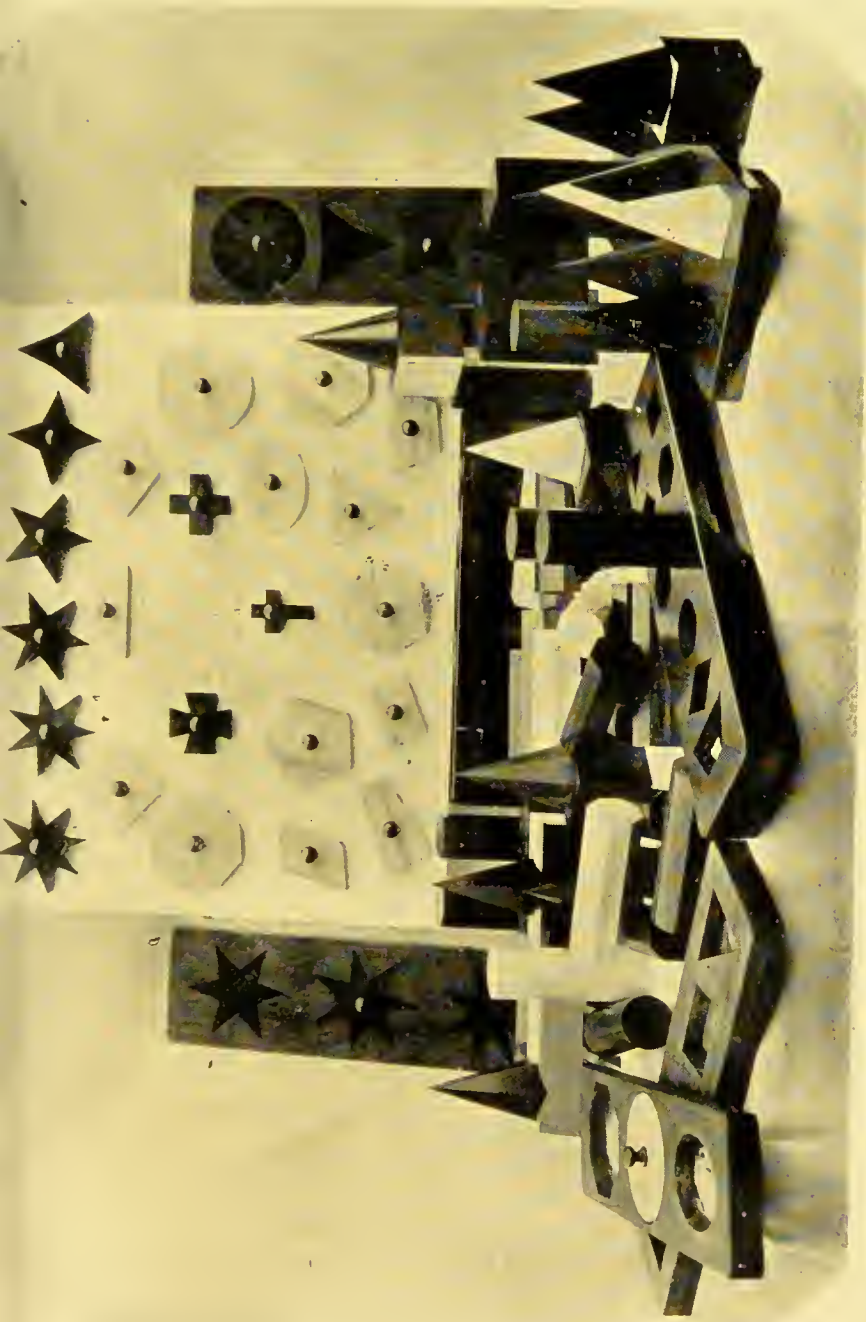


PLATE XII. Models used in training the senses of Sight, Colour, Form, Patterns and Building. (Models made by John James and William Teare for the Sandlebridge Schools).

There seems to be a great advantage in having all these models made of a size that readily attracts the child's attention and makes them easy to grasp.

The cupboard for smell contains a variety of substances such as pepper, mustard, onions, lavender, put into bottles with wide necks, which can be easily offered to the child's nostrils. He is blindfolded and has to guess what is offered to him. The taste cupboard has a number of bottles with different strong-tasting substances in them. The bottles must be wide enough to allow of a spoon being inserted. A basin with water and some harmless disinfectant is at hand to wash the spoon after each use of it. The teacher gives the child a tiny taste, say of ginger or of flour or of salt or any other substance of which it may be supposed to know the name; always she finishes up with a little taste of sugar. And always, after each use of the spoon, she dips it in the basin and wipes it on a clean cloth. The child is, as before, blindfolded.

The hearing cupboard is furnished with a variety of instruments for making different noises. Bells of various sizes, cymbals, rattles, whistles, etc. The child guesses, blindfold, which instrument is being used.

The touch cupboard has a big bag, full of all manner of objects; balls rough and smooth, pot eggs, little dolls and toy animals, bricks, pieces of cloth, woollen, cotton and silk. The child

dips into the bag and guesses without looking what object he has laid hold of.

A clever teacher will make this lesson as delightful as a game to the children and will constantly vary the objects used.

Around the room are the elementary forms of kindergarten work. They are, more or less, in use in all infant schools and need not be specially described. One item which I have not seen elsewhere were the strands of red and yellow and blue cloth, hanging from hooks on the wall, ready for plaiting by the children as they stood in front of them. They have to reach up a very little to get at them, and the attitude is a good one for the feeble-minded, whose inclination is too often to look down and hang the head.

It would be superfluous to enter into all the details of the routine of a school for the feeble-minded. They are very well known to everyone who has had to do with such a school. Generally it is safe to say that the methods employed should be those of the kindergarten, but that these should be so adapted as to teach the child not only co-ordination of hand and eye, and as far as possible to develop its reasoning powers, but to teach it at the same time to perform some useful work. A child has learned a great deal when it has learned to lace its own boots. This is an excellent lesson for hand and eye; but it is also something accomplished towards his after-care of itself. A child has had a lesson in

training of hand and eye when he has learned to weave paper into patterns; but he has not thereby achieved anything of lasting value. He will still have to learn to lace his boots. There is much training in the knitting of stockings, training in counting, in the use of the fingers and in memory and observation. It is a far better occupation for the child than the mere knitting up of a quantity of wool which is afterwards unravelled and given to another child to knit again. Very few feeble-minded children are incapable of perceiving that they have been employed on a useless piece of work. It is most desirable that everything the child is taught by way of occupation should serve some useful purpose. Knitting, sewing, rug-making, Macramé work all are admirable exercises, and are at the same time an asset in the child's after life. No skilful teacher will follow this principle to excess. There are exercises which must be used merely for their present value, or for the pleasure which they give to the child; such as arranging coloured pegs in holes or putting together a dissected puzzle. In the main, however, it is well to remember that the defective child can acquire only a limited amount of knowledge and that with much pains and patient labour on the part of the teacher. This painstaking labour may as well be bestowed on what will make for future efficiency, seeing how short is the time

during which we can hope to teach the child anything.

Some children in every school will be able to learn to read and write. Very few will care so much for reading that they will take pleasure in it after they have left the school-room. Every boy and girl ought to have the chance. One little girl who is excessively troublesome can always be kept quite good and happy by giving her something to read which she has not read before. As to writing, I confess to being sceptical as to its value. In at least one great institution, the knowledge of how to write has led to great difficulties in managing the high-grade cases, the men and women communicating with each other by means of notes. Simple arithmetic has a practical value which makes it a very useful subject to be taught. It is interesting to note that the children themselves, by their games, teach each other a good deal of simple reckoning: they count the number of times they clear the skipping-rope, the number of times they catch the ball, they reckon whose turn comes next.

In the same way they deal with one of the greatest problems that the teacher of defective children has to face, the problem of defective speech. Children who are constantly together *will* communicate with each other, and many a child who comes to Sandlebridge with scarcely any vocabulary learns from his little school-

mates far more than he can be taught in the school-room. Nevertheless, this is one of the most significant defects with which the teacher has to deal. It is worth while to take much trouble to improve a child's speech and to give him more words. If pains be taken with the enunciation in the singing lesson, this is a great help towards the improvement of speech. At prayers also the children should be taught to try to say the words they are using distinctly and slowly. Here again, as in all concerted action, they learn from each other. It has been contended that children of weak intellect should be treated singly, a teacher devoting to each a great deal of individual attention. This is a great mistake; and it is here that the children of the poor often have an advantage over the children of the rich. They have all the gain there is in companionship. All children delight in concerted action, and especially does the defective child find pleasure and profit in it. For him it is particularly necessary; normal children have all some points in common, however much they may, on the whole, differ from each other; the defective child is, by reason of his defect, more isolated; there are no two defective children who are alike in tastes, abilities and habits. If once the boy or girl can be induced to take part in organised games, drill, marching or singing, the spirit of rivalry, the desire to do a little better

than his neighbours, may be aroused; then there is hope of progress.

Lessons of any kind, whether for head or hand, must not be made too long. Change is wholesome, and a wise teacher will see that her little scholars are not kept too long in one position or at one kind of work. In short, all that is of use in a well managed infant school is of use in a school for the feeble-minded.

It will not unfrequently be found that the brighter children, those who are capable of learning to some extent, have a great dislike of it. This is probably because these children have a greater degree of physical strength than the worse cases. They are often robust, rough children with much animal vivacity, which it is very difficult to control. It is well to take the earliest opportunity of releasing such a child from school and sending him to more congenial work. I say the earliest possible, because the children must be occupied and care must be taken not to allow a young boy to do too much physical work. School is a great safeguard against over-work. These children to whom lessons are irksome and who therefore give endless trouble to their mistress, will often become quite manageable when put to work under a man out of doors. No doubt the fact that the man's greater strength enables him to control the naughty boy without a struggle, has something to do with the matter.

Especially is this the case with children of violent temper. C.A., aged twelve, was a short, thick-set, sturdy boy, very strong. He was quite able to read and write, but detested doing his school work. He was subject to storms of uncontrollable passion during which he was blind and deaf to all remonstrance. After one such attack, during which he had thrown his dinner at the wall, he was sent to work as a means of checking the terrible sobbing with which his attacks always ended. In five minutes he was quite happy, unloading coal with one of the older boys. He was then given for half of each day to the horse-man, the understanding being that if he were naughty in school he could not go to work. The plan answered admirably, and for over a year now he has not gone to school at all; he is about fourteen years of age; still very small, but very strong. He can harness the horses, who put their heads down to him since he cannot reach up to them. He is now milking five cows morning and night, is a most useful farm-boy and as happy as the day is long.

The other child was endlessly troublesome and disobedient; fretful and teasing and mischievous to the last degree. He was always in disgrace. He also could read and write. At last, though he was full young for it, we tried the same experiment with him as with the other boy. We sent him to the gardens. He has wonderfully

improved, is happy and generally good and seems much better in health; he is round and rosy-faced with a nice bright grin instead of the downcast scowl he used to wear. It would be well if his little sister could be treated in the same way.

It is, of course, necessary that one should be able to trust the men to whom one hands over such children; they should be good-tempered and patient and willing to teach; careful also that the children do not get over-fatigued or wet and cold.

The great advantage of a residential school over a day school (so long as school life goes on) is that everybody concerned with the children teaches them. Matrons, house servants, gardeners, farm-men; all must be selected with a view to their being able and willing to assist in the training of the children. It is a work demanding endless patience and sympathy. But it is one that has a growing fascination for those who embark upon it whole-heartedly and unselfishly.

Work.

There cannot, with propriety, be fixed any age at which the children of a colony should quit the school-room and go to work. As has been seen, there are cases in which it is desirable to allow the child to leave the daily routine of lessons exceptionally early. If school work is an excel-

lent means of providing training and employment for children without undue physical fatigue, work outside the school-room, physical labour, is an equally good means of occupying and training those who are troublesome and robust. In every case, the individual character and needs of the child must be considered. When it has been decided that a boy or girl shall go to work, it is well to secure in the first place that the mere fact of this promotion shall be regarded as a favour. This is not difficult to manage. When the preliminaries have been arranged the question should be raised in the presence of the child. It should be quietly discussed whether the child is good enough to be allowed to work; whether he or she can be trusted not to give too much trouble. Then the matter can be held over for a little while, expressly for the purpose, from the child's point of view, of considering these weighty matters. During this period those in authority will be besieged by requests to be allowed to go out and work or, if it be a girl that is under consideration, to be allowed to go to the laundry. When the time finally comes for the child to be released from lessons, a pleasant fuss should be made about the matter. There will be the necessity, probably for making some suitable change in the clothing worn; of getting up a little earlier and going to bed a little later; of being big instead of little. All these things should be conceded

as a great favour. *Almost any work that is within the physical and mental capacity of the children can be got from them by allowing them to do it as a favour instead of imposing it as a duty.* The question of duty must not be neglected, but it will have to come by degrees. The first thing to do is to make them see the truth that it is a privilege to work.

Then comes the question of making sure that the child shall not be disheartened at the beginning by being given a task that is beyond his or her strength. For instance, if a boy be about to learn to dig, it is well at first to give him a spade that is only three-quarters of the usual size. He will be able to handle this with ease. From the outset, care must be taken that he does handle it to some purpose. He must not be allowed to play with it; the spit of earth must be properly dug and completely turned over and the digging, however slowly, must be done. It must be remembered that an ounce of encouragement to these children is worth a pound of blame. I have in my mind a big, lazy, good-natured girl who for some time after leaving the school-room, seemed hopeless as a worker. One day it was noticed that she was turning the handle of the mangle. It was purely mechanical, but some one remarked with much expression of surprise and pleasure:—"How beautifully N. does turn the mangle. I should not wonder if she could fold pillow-cases

just as well." Of course N. wanted to try and was delighted to find that she met with a measure of success; after a few weeks of patient teaching N. could fold clothes. Now the once helpless, feeble fingers can do much more than that; she can iron clothes. Girls, even more than boys, need to be watched that they do no more than is good for them. It is to be hoped that, wherever funds admit of it, variety of occupation may be provided for all girls. Weaving, mat-making, lace-making, all are possible and all are profitable and pleasant for the children. This greater delicacy of the growing-up girls is no doubt one reason why they are more difficult to manage than boys. If a boy is troublesome it is in most cases safe to let him work his naughtiness off. With the big girls, however, the demonstrations of hysterical temper that often occur, between the ages of thirteen and eighteen have to be considered as indications for extra care. Indeed they are often accompanied by definite illness; for instance, one girl for some years had a distinct rise of temperature once a month; this was always observable when she was particularly naughty and bad-tempered.

The physical strength of the feeble-minded is generally as defective as is their mental strength, though of course, there are notable exceptions to this rule. The lack of co-ordination between hand and eye makes the using of their muscles a greater fatigue to them than it is to ordinary

children. Their clumsiness increases their labour. If due care be taken, when they begin to work, that they are not over-fatigued, a marked improvement in health and strength generally shows itself after the first six months of bodily work. Their muscles develop and they gain more skill in the use of them. Their knowledge increases and their horizon enlarges. They learn to know something of the properties of matter; they begin to understand that earth is soft and stones are hard and heavy in proportion to their weight. Many of them have previously been in the position of the little child who was seen one day patiently trying to fit the front door-key into the lock of his mother's bureau. Now they learn from practical experience about the relative sizes of things; about angles, squares and other geometrical figures. Not that they can call them by their names:—nor is it of importance that they should do so; the point is that they should no longer make errors in their daily work from the lack of perception of the shapes of things. Rough and smooth begin to have meanings for them; the boy knows that the mowing machine will make the lawn smooth, the girl that the hot iron will do the same good office for her pinafore. Cause and consequence take part in their daily routine of thought; the cows must be fed that they may give us milk; the chickens that they may lay eggs. Potatoes must be peeled because the peel is nasty and bad

to eat. Weeds must be taken up because they will kill the flowers.

The men and women who have charge of the children during their working hours should be carefully chosen because of their power of understanding the condition of the boys and girls, and their ability and willingness to make all work a continuation of education. It goes without saying that self-control and patience are absolutely essential for these out-door teachers.

For some of the children it will be found necessary to give them change of occupation from time to time. For most, the best plan will be to get them into a groove and keep them there. If a garden boy wants to leave his work and go to the farm, if a laundry girl wishes to forsake the laundry and take to sewing, care should be taken to ascertain whether there is any more in the wish than the restless desire for change. Time is lost in getting the children into the habits of one class of work and then allowing them to throw it over and begin upon another job that entails fresh teaching and learning. Sometimes, however, especially if the child has got into a fractious cross fashion with those who are over him or working with him it will be well to give the change. For some of the low-grade cases no change is ever desirable nor is it wished for. One must be very glad if a boy or girl can learn to achieve successfully some small mechanical piece of work, such as

washing flower pots or polishing a floor. At least that piece of work need not be done by a child of greater intellect.

In considering the work of the feeble-minded two matters have to be kept constantly in view; the first is the welfare of the boy or girl, the second the money result that may be obtained from their labour.

It is essential that the weak in mind should be employed in order that they may be as healthy as their bodily limitations will permit; it is essential also that their employment shall be so regulated and thought out as to make them happy in it.

It is also essential that the work they do shall not be wasted effort, but shall either bring in or save money. In the case of the very best of the feeble-minded, it is probable that the difference between their earnings and those of the normal boy or girl of the same age will be represented by the cost of their supervision. Some boys and girls will do surprisingly good work when looked after; others will be able to achieve very little. The object to be aimed at is that no boy or girl or man or woman who is able-bodied shall be allowed to do nothing. Idleness means degradation of the lowest kind for the feeble in intellect. There is no other way but regular work, which leaves the children so tired at night that they go to sleep when they go to bed, to keep them from falling into habits which further

lower the already low intelligence and physical strength.

Games.

The more the children play the better. Organised games are good. In England football and in America baseball are great stand-byes. Great value, however, is to be attached to games that the children devise for themselves. They should be given chances to play freely and follow out their own plans. Where possible a piece of ground in which they can grub round without doing themselves or other people any harm is a great advantage. It is pleasant to see little gardens growing up in corners of the playground. It may be sad that they should be the sort of gardens which belong to a much younger age normally, but it is so good that they are there at all. Skipping, ball-games, hoops, kite-flying all are good. Horses, with reins made from any ends of strings that the children can find, are excellent. Such reins are far better than the pretty ready-made ones that are given so kindly at Xmas-tide. It is better for the child to be prompted by his desire to play horses to look for or beg string and then to knot it together himself, than to have all his wants supplied. Often it is a pleasure to the children to carry out in play-time what they have learned in school. Some girls at Sandlebridge picked up every stray bit of wool that they could find

or beg and made these into a pair of bed-room slippers for their matron, without help from anyone. They saved their pennies and bought the soles and stitched them in. The result was curious to look at, but the slippers were properly made in every particular.

I have found children knitting with bits of ravellings and smoothed pieces of twig which they had broken from the hedge. In their games especially the delight of the feeble-minded child in accomplishing something is apparent. It ought to be encouraged to the utmost degree.

Like other children, these boys and girls enjoy make-belief; they like to play at shop or at school; one very unsocial child would, so soon as school was over, take a number of stones, range them in a line, and proceed to give them lessons; this one she would praise, the other blame, mimicking the routine of the class she had just left. She much preferred this to playing with the other children. This unsocial disposition is not to be encouraged. The children must learn to take their share of rough and smooth in the little community of which they form a part. They educate each other in their play quite as much as their teachers can educate them. Needless to say, they must not be left to play unsupervised. Someone must be at hand to interfere if passions, always too readily roused, become uncontrollable. For games in the house, building with bricks, dolls, dissected

picture puzzles, skipping and dancing are all good. Soldiers are an endless delight to boys. Toys are broken very frequently; they must not for that reason be put out of the children's way. It is better for them to break their toys than for them not to play. These indoor games afford the opportunity of enforcing lessons in tidiness and order. The children should learn to put away the things with which they have been amusing themselves. Care, however, must be taken that too much is not sacrificed to tidiness. It is not possible that a large room, in which a number of children have for some time been playing happily, should look tidy.

Hospital or Sick and Isolation Rooms.

It is essential that in every Colony there should be the means of completely isolating a case, if the doctor desires to do so. All doubtful cases of illness should be isolated pending his decision. A hospital is, of course, much the best, but if this cannot be had, rooms should be arranged in which the children can be nursed if they are ill. One room of four beds to every forty children will probably suffice. There should be no furniture in these rooms except the beds. A nurse can easily carry in a little table and a chair if she needs them. When the child gets up, one of the small tables and chairs provided for the living-rooms can be taken in for

it. The room should face South, and should be easy to warm and to ventilate. There should be an open fire in it, well guarded. The walls should be light in colour and easy to clean. A bright linoleum should cover the floor. The ordinary appliances for the use of sick people should be at hand; it is useful to have, for those children who are not very ill, a white china pail to save them from going to the office to relieve themselves. This shews when it is soiled and can be easily cleansed. It will be found that, as a rule, feeble-minded children are much more content to lie in bed than are ordinary children. It is not good for boys to lie in bed, and so soon as the doctor permits, a sick boy should be allowed to sit up. A boy should not be sent to bed for slight ailments, nor should he be sent to bed as a punishment. For a girl, a day in bed is often a very good thing; the comparative isolation and complete rest are often the best cure for attacks of nervousness or temper.

The sick-room window, and all other windows above the ground floor, should be protected so that children cannot climb out of them.

Every care must be taken to provide easy exits in case of fire.

Dispensary.

This will be under the charge of a nurse and should contain such things as are likely to be

used or dispensed by the doctor at his weekly visit. It is mentioned here chiefly to insist on the necessity of its being kept carefully locked, and of the poisons being separated from other drugs.

General.

It will be seen that there is no hard and fast line which can be drawn dividing the childhood of the feeble-minded from their manhood;—their school-life from their industrial life. It is necessary when the child comes into our care to let him become part of the community in which there is a natural linking-up between all the stages of his growth, dependent in every case upon his individuality and not upon his age, until, indeed, he reaches the point at which, for obvious reasons, it is necessary to separate him at night from the younger boys. Even this cannot be a fixed point. It is sometimes desirable to keep a childish boy longer with the younger ones, or to remove a precocious youth sooner from their company. Even when the big boys and girls are sent to sleep apart from the children, it is well that they should still take their meals under the eye of the matron of their house, so that a watch may be kept upon their manners and their habits of eating.

In every case what should be aimed at is to find out what it is in the feeble-minded child that

is normal and to develop that so far as possible. Dr. Lapage has defined feebleness of mind as irregular failure of development. It is because the development is irregular that we find such startling incongruities in their behaviour. It is sometimes difficult to realize that their absurd and inconvenient actions are not wilful, when they have been seen to behave quite like normal beings in other matters. The more like normal beings they are treated, the better for them. Within its due restrictions their life should be that of normal people. The one thing to be remembered is that even the best of them cannot be counted on and that, while we try to make them feel responsible, we must always remember that they are not responsible. Kindly encouragement and strict supervision must be the key-notes of their training. Absolute division of the sexes must be maintained except for little children at lessons.

All who work with the feeble-minded must be chosen with a strict regard to their characters, and especially with a view to their self-control and patience. It should be carefully explained to them, when they are engaged, what are the difficulties to be faced, and they must be men and women who can be absolutely trusted to take care that the boys and girls shall hear nothing harmful. Especially it should be explained to them that they must not talk to the children about the outside world. The effort of everybody

concerned ought to be to make the world in which the children live so very interesting to them that they will not want to leave it. This can be done. The child remains a child, whatever his age may be, he has a child's outlook, a child's pleasures and expectations. It rests with those responsible for him to decide whether he shall be a happy, good, pure child or a plague-spot upon the face of the earth.

SANDLEBRIDGE COLONY FOR THE FEEBLEMINDED.

Sandlebridge Colony is the outcome of the work of the Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded. This Society was founded in 1898. The somewhat clumsy name of the Society is due to the fact that it was determined from the beginning to adopt the principle that only Permanent Care could be really efficacious in stemming the great evil of feebleness of mind in our country. The idea at first met with much opposition; no other Society was willing to entertain it, and it was obvious that it would take much work and some time to accustom people to it. Happily it is now universally regarded as the proper method of dealing with the weak in intellect.

The first step was to convince people that the work we had pledged ourselves to was worth doing; and the second to collect funds with

which to do it. Here the assistance and countenance of the late Mr. Herbert Philips was invaluable. The David Lewis Trustees, of whom he was one, were asked for help and gave twenty acres of land, which Mr. Ben Levy most kindly selected and personally presented to the Society. The Society now owns over one hundred acres. The first house was opened in May, 1902. There are now on the estate, which is situated in pleasant country at Great Warford, about three miles from Alderley Edge, six residential houses, a day school, two farms and several cottages, as well as a good laundry. There are now 138 boys and 87 girls in residence, of all ages from five to twenty-two; fifty-one are over the age of sixteen. They are classified according to their age and sex. Little boys, 86 in number, are in one house, boys from twelve to sixteen in the "Boys' House." Boys from sixteen to twenty-two are at Norbury farm to sleep, but return to the Boys' House for meals, prayers, baths, etc. In this way a hold is kept upon their manners and behaviour. A generous friend has just given money to provide a house for young men; to this the boys over twenty will be promoted so soon as it is ready.

Girls are, at present, divided into two groups; the little girls in the "Girls' House" and the older girls at Warford Hall. Further accommodation for girls is now being made.

The results of the principles upon which the

colony is managed have been very happy. All the children are fully occupied from the day of their entering the school; even very little ones are trained to look after their own persons. The grown-up children justify the way in which they have been brought up; they are very contented and do a great deal of useful work, thus contributing materially towards their own maintenance. Boys are employed on the farm and in the gardens. There are over fifty head of cattle, as well as pigs, poultry, etc. Six of the boys can milk; many of them are capable of engaging in all the work that ordinary farm lads do (always under strict supervision).

Girls are engaged in house and laundry work, sewing, knitting, etc. It is intended that as soon as funds permit other occupations shall be provided for them.

There are seven men employed out of doors with whom the lads work. The management of the farm is in the hands of Mr. Wyatt who, as a member of the governing body, has always taken a keen interest in the work at Sandlebridge, and has given to it endless patience and much time and thought.

There is a resident Lady Superintendent of the colony who has a staff of twenty-seven women under her. Each house has its own matron; there are seven teachers in the school, all of whom are in residence.

The Hon. Secretary visits the colony, as a rule, each week, meeting there the doctor who also visits once a week, and more often if necessary. A trained nurse carries out his directions.

The Society is incorporated, and is managed by a governing body under the Chairmanship of Sir Thomas Thornhill Shann. A House Committee meets once a month at the colony.

The medical adviser to the colony is Dr. McIlraith, Alderley Edge.

Applications for admission should be made in the first instance to Miss Dendy, the Hon. Sec., at 13 Clarence Road, Withington, Manchester, from whom all information may be obtained.

APPENDIX II.

THE DETAILED EXAMINATION OF THE HEAD.

METHODS.

Before commencing a detailed examination of the head measurements the observer should make himself familiar with certain of the external markings of the skull.

The most important of these for the purpose in hand are:—

- (1) The tragus or point just in front of the opening of the ear.

- (2) The external occipital protuberance, a projection in the middle line at the back of the head just where the skull joins the neck.
- (3) The external angular process of the frontal bone at the outer angle of the orbit.

The skull is made up of eight bones and the roof is formed by four, viz., the frontal bone in front, the occipital bone behind and the two parietal bones on each side.

The measurement most commonly taken and the one that suffices for ordinary purposes is the greatest circumference of the head taken in inches or centimetres with a tape (not a metal) measure, but if it is desired to examine the head more thoroughly the following special measurements are of value:—

- (1) The contour tracing of the greatest circumference, taken by moulding a strip of lead* to the head and checking the diameter with callipers.

- (2) The contour of the bitragal arc or the arc of the skull as measured from ear to ear.

*Lead suitable for taking these contours can be obtained from instrument makers and callipers should be marked with a scale in both inches and centimetres. A detailed description of how to take these measurements can be found in the "Medical Chronicle" of August, 1905, and in "The Medical Inspection of School Children" by Mackenzie, Edinburgh, 1904.

(3) The contour of the naso-occipital arc or the arc of the skull as measured from the root of the nose to the external occipital protuberance. This tracing gives the slope of the forehead and the occipital development.

(4) The height of the skull can now be measured by marking in the base of the bitragal tracing and dropping a perpendicular line on to the base from the arc at a point which is at equal distances from the two tragal marks. The length of this vertical line will represent the comparative height of the skull. Though this method may not give such an accurate measurement of the height as the one advocated by Mackenzie, it is sufficiently accurate for the purposes of comparison.

(5) The antero-posterior and bilateral diameters have already been taken. It is much more convenient to use self-recording callipers which have a scale marked in both inches and centimetres.

A detailed examination of the heads of feeble-minded children is of value as illustrating the following points:—

(1) To obtain a general idea of the size of the organ contained in the skull as accurately as is possible by external measurements.

(2) To see whether there is any diminution in size of the skull, and, if such be present, to determine whether it is due to defect of any one

region or merely to a general under-development.

(3) To find whether asymmetry or irregularity is to be noted in a large number of cases.

(4) To discover if there is any relation between the deformity and the nature or degree of the mental deficiency.

RESULTS.

The following table shows a comparison of the heads of four different groups of twenty feeble-minded children, and twenty children taken at random from the wards of a hospital, *i.e.*, one hundred children in all. The classification into "Good" and "Bad" refers to the mental capacity, which was in each case estimated independently by the teacher. In order that the table might be as fair as possible, the cases in each class were taken at random from the 200 cases examined before any reference had been made to the head measurements. In Column 1 the heading "Occipital greater than Frontal by Total of" represents the sum total in inches of the differences between the occipital and frontal radii (see Plate III.) in the cases in which the occipital radius was longer than the frontal. The headings of Columns 2, 4 and 5 are explained in the same way. Columns 3 and 6 show the number of cases in which the radii were equal. Column 7 shows the estimation of the general

appearance, G. standing for good, F. for fair, P. for poor, and B. for bad. The last column gives in cubic centimetres the figures obtained by multiplying the length, breadth and height together. This, though not representing the true cranial capacity, gives some approximate idea of the size of the brain.

Smallness of the maximum circumference is common in the feeble-minded. 34 per cent. of my cases had small heads if a head below 20 inches in circumference is to be regarded as small. Asymmetry, as brought out by the contour tracings, is also very common indeed. Marked asymmetry occurred in 25·9 per cent. of my cases and a lesser degree in many more. The right half of the skull as measured by the above methods is often greater than the left. The degree of inequality is estimated by taking the difference between the two parts of the bilateral diameter as divided by the line of the antero-posterior diameter (see Plate III.). In by far the majority of cases the right side was greater than the left, sometimes by as much as $1\frac{1}{2}$ inches. This asymmetry is compared in Table V., and it will be seen to occur with much greater frequency in the feeble-minded as contrasted with the children of ordinary intelligence.

Since children who showed the most marked stigmata of degeneration exhibited this lateral asymmetry to the greatest degree, it should be regarded as a stigma of degeneration.

	Occipital Greater than Frontal by Total of	Frontal Greater than Occipital by Total of	Equal	Right Greater than Left by Total of	Left Greater than Right by Total of	Equal	General Appearance of Head	Average Approximate Cranial Capacity
Heads of 20 children of average intelligence - -	13 $\frac{1}{4}$ in.	$\frac{1}{2}$ in.	1	2 $\frac{1}{8}$ in.	2 $\frac{1}{8}$ in.	7	6 G. 9 F. 4 P. 1 B.	3105·5 c.c.
Heads of 20 feebleminded children classed as 'Good' -	11 $\frac{1}{2}$ in.	—	3	4 in.	$\frac{1}{4}$ in.	4	6 G. 7 F. 7 P.	2969·6 c.c.
Heads of 20 feebleminded children classed as 'Bad' -	5 $\frac{1}{2}$ in.	$\frac{1}{2}$ in.	8	3 $\frac{5}{8}$ in.	$\frac{7}{8}$ in.	5	7 F. 6 P. 7 B.	2723·3 c.c.
Heads of 20 feebleminded children exhibiting marked and numerous stigmata -	4 $\frac{3}{8}$ in.	1 $\frac{1}{8}$ in.	2	8 in.	—	5	1 G. 6 F. 12 P. 1 B.	—
Heads of 20 feebleminded children exhibiting speech defects - - - -	8 $\frac{1}{2}$ in.	1 in.	3	3 $\frac{7}{8}$ in.	1 $\frac{1}{4}$ in.	2	5 G. 6 F. 6 P. 3 B.	—

Another abnormality frequently shown by the tracings was deficiency of the posterior parts of the skull as compared with the anterior, the bilateral diameter being taken as dividing the skull into these two parts. The table shows this abnormality to become more and more marked as we progress from "Good" cases to "Bad" cases, and deficient occipital development is one of the most common deformities in the skull of a feeble-minded child. Ashby and Shuttleworth both describe this abnormality.

Taking the normal heads as a standard, the measurements from the point at which the diameters cross, to the two ends of the antero-posterior diameter should show that the posterior division is $\frac{3}{4}$ inch to 1 inch longer than the anterior (Plate III.). In many of my cases there was marked deficiency of the posterior division of the skull as compared to the anterior part, and this fact points to the frequent occurrence of under-development of the posterior division of the skull. A diminution of the curve of the occipital bone was also shown by the naso-occipital tracing. (Plate III.).

Abnormalities of the frontal region were chiefly in the form of a general rounding when looked at from above, or under-development as shown by the lateral view.

The tracings of the bitragal arc often showed asymmetries and irregularities in the skull con-

formation, but no one abnormality is especially common.

It should once more be stated that these measurements refer to the skull and not necessarily to the brain.

APPENDIX III.

THE DETAILED EXAMINATION OF THE SPEECH.

METHOD OF TESTING.

The following is the best method of testing and analysing the defects of speech in feeble-minded children.

Attach 20 or 30 cards loosely together on string and devote one card to each consonant. The consonants and the physiological alphabet are given in Chapter IV. Each card should have the description of the consonant at the top, and beneath that should be written words containing the consonant in its three positions, *i.e.*, at the beginning, at the end and in the middle of a word. It is better to have several common words as alternatives because many simple words are not known to a feeble-minded child. Drawings or colours must be definite in character, and it is better to have each drawing on a separate card.

The following is a reduced facsimile of the card used for P:—

P. LABIAL 1st Stop.
Voiceless Oral.

- (1) Pen—Paper.
- (2) Soap—sheep—Top.
- (3) Paper.

The words must be chosen with regard to the ease with which they can be represented and understood by the child.

Numerals, colours, and any objects, commonly found in the room, will be found to be very useful, while all that is needed in addition to these are a few drawings and one or two small articles. Phrases such as "Silly Sarah," "Large rat," "Red lamp," may be used as additional tests in the better class of case, but they are open to objection because they have to be pronounced first by the person conducting the examination.

It is not possible to test H or Zh, and some consonants only occur at one or two of the three positions. Combinations of the consonants are more difficult to test, and also more frequently pronounced badly, but the defect is frequently traceable to imperfect pronunciation of one of the two.

TABLE VI.

The following table shows the words used for each testing consonant.

P.	(1) Pen, paper.	(2) Soap, top, pipe,	(3) Paper.
B.	(1) Button, book,	(2) Crab, tub, rub.	(3) Rabbit.
M.	(1) Mouth, match,	(2) Jam, thumb.	(3) Hammer,
W.	(1) Wood, window.	(2) —	(3) Flower.
F.	(1) Fish, five, fire.	(2) Roof, cough,	(3) Toffee, puffer.
V.	(1) Velvet, violet.	(2) Glove, five,	(3) Seven, eleven.
Th ¹	(1) Thumb,	(2) Mouth, teeth.	(3) —
	thimble,		
	thank.		
Th ²	(1) The, that, this.	(2) Bathe.	(3) Mother.
S.	(1) Soap, six,	(2) Face, mouse,	(3) —
	scissors.	glass.	
Z.	(1) —	(2) Nose, please.	(3) Scissors.
T.	(1) Teeth, ten, two.	(2) Eight, coat, cat.	(3) Button.
D.	(1) Door, dog.	(2) Wood, lad, head.	(3) Ladder, lady.
N.	(1) Nose, nail, nine.	(2) One, pen, button.	(3) Penny, raining.
Sh.	(1) Shirt, sugar,	(2) Fish, wash.	(3) Washing.
Zh.	(1) —	(2) —	(3) —
L.	(1) Leg, lad, lead.	(2) Ball, wall, nail.	(3) Collar, yellow.
R.	(1) Rabbit, red,	(2) Fire, door, ear.	(3) Parrot, barrow.
	ring, write.		
K.	(1) Coat, collar, cat.	(2) Book, black.	(3) Pocket, poker.
G.	(1) Gun, girl.	(2) Clog, dog, leg.	(3) Sugar.
Ng.	(1) —	(2) String, tongue,	(3) Ringing, singing.
H.	(1) Head, hair.	(2) —	(3) —
(y)	(1) Yellow	(2) —	(3) ---

Pl. Please.	Thr. Three, throw.	Sn. Snail.	Dr. Drink, draw.
Pr. Prince.	Tw. Twelve.	Sl. Sleeve.	Kl. Clean, clothes.
Bl. Blue, black.	Sp. Speak.	Sch. School.	Gl. Glove.
Br. Brown.	Sm. Small, smack.	Tch. Chair, chin.	Gr. Green. Ft. Fifty.
Fl. Flower.	Sw. Sweet.	Tl. Little, kettle.	Str. String.
Fr. Frog.	St. Stand, stick.	Tr. Train.	Spl. Splash.

RESULTS.

The following is a list of the consonants most commonly defective, arranged in the order of the frequency with which substitution occurred and with the most common substitute appended.

TABLE VII.

1. Th (Th)—(F) (T).
2. R—(Y) (L).
Y—(R) (L).
4. S—(T) (Ts).
5. G—(D).
Ng—(N) (Nd).
7. Sh—(Tsh) (Ts) (T).
8. K—(T).
V—(B).
9. L—(Y).
10. F—(T) (P).
11. Z—(D).
12. W—(U).
13. P—(T). (D).
14. N—(D).
15. D—(T).
16. T—(S) or (Ts).
17. N—
18. M—
19. B—

Cases illustrating speech defect in feeble-minded children are as follows :—

T. H., aged 8 years. Hesitates in speech and is much teased at school because his speech is defective. Thumb=tum; window=indow; wood=uoud; flower=thouerd; fish=tsish; fire=tuiere; roof=rootd; fifty=fixy or thissy; vein=beyain; vases=barded; sleeve=tuede; five=fide; glove=gud; three=tuee; thirty=tirty; mouth=mouts; that=dat; bathe=bade; six=tsix; soap=tchoap; nose=node; toes=tode; shirt=tchirt; leg=yeg; read=yead; nail=naid; girl=gir: eleven=eyennan; raining=yain-ing; write=eeyite; please=puyead; fly=cly or fuy; twelve=tyed; little kettle=yuick keka; blue=beru; throw=tuo; sleeve=tuyeeve; clothes=cuyede.

W. M. C., aged 8 years. Feebleminded; poor power of attention; speech bad; P.B.M.W.F.V. good; th=f; scissors=sithers; T.D.N. good; sh=th; sheep=theep; sugar=cugar; shirt=sirt; fish=fis; watch=watse; L. and R. good; K=t; coat=toat; cat=tat; G=D; gun=dun; green=drean; school=stool; little kettle=lickle tettle; twenty=bwenty.

APPENDIX IV.

FORM AND CERTIFICATE SUITABLE FOR USE WHEN
EXAMINING FEEBLEMINDED CHILDREN FOR
ADMISSION TO SPECIAL SCHOOLS OR
INSTITUTIONS.

I am indebted to the Manchester Education Committee for permission to publish the following form, which is based on the Government form and Dr. Ashby's suggestions. The form can be rapidly and easily filled up and is very

convenient for filing and reference. It should be printed on a double sheet of strong paper of foolscap size, the outer page in front being reserved for the reference numbers, the name, name of school, and dates of admission and discharge, which are all in the right-hand top corner, and the back page being blank. The certificate, which is the one authorised by the Government, is separate from the form and can be attached to it later, if necessary. The certificate, the front page and pages ii and iii of the form are as follows:—

MANCHESTER EDUCATION COMMITTEE.

CERTIFICATE FOR ADMISSION OF CHILD TO SPECIAL SCHOOL FOR DEFECTIVE CHILDREN.

I,....., a duly qualified practitioner, approved by the Board of Education, certify thatnot being imbecile and not being merely dull or backwards is, by reason of (1) mental or (2) physical, defect incapable of receiving proper benefit from the instruction in an ordinary public elementary school, but is not incapable, by reason of such defect, of receiving benefit from instruction in a certified special class or school.

.....
Medical Officer of the Board.

Date.....

[Page I.]

No.....*School*.....*Name*.....*Date of Birth*.....*Admitted**Discharged**Rejected*

[Page II.]

MANCHESTER EDUCATION COMMITTEE.

FORM OF ADMISSION TO THE SPECIAL CLASSES.

<i>Name</i>	<i>School</i>	<i>Std.</i>	
<i>Age</i>	<i>Height</i>	<i>Weight</i>	<i>How</i>
<i>long at School</i>	<i>Date of Examination</i>		

PARTICULARS OF FAMILY HISTORY OF CHILD.

(Living) Present Age.

Present state of Health.

Father, alive, aged

Mother, alive, aged

Brothers { alive, aged

{ alive, aged

{ alive, aged

Sisters { alive, aged

{ alive, aged

{ alive, aged

(Dead)		Cause of death.	Year of Death.
Age at	Date of Death.		
Father,	died, aged		
Mother,	died, aged		
Brothers	{ died, aged		
	{ died, aged		
	{ died, aged		
	{ died, aged		
Sisters	{ died, aged		
	{ died, aged		
	{ died, aged		
	{ died, aged		

Fa - - fa.
 mo.
 bro.
 si.
 Mo - - fa.
 mo.
 bro.
 si.

- * 5 When was the mental deficiency of the child first observed?
 6 To what cause is this mental deficiency attributed?
 7 Is the child subject to Epileptic or other Fits?.....
 8 From what illness has the child suffered?.....
 9 Has the child received any special treatment? if so, where?
 10 When did the child commence to walk and talk?...

Name and address of person giving the above information :

* On a foolscap sheet the spacing can be arranged differently so as to give more room for the answers to the questions headed 5, 6, 7, 8, 9, and 10.

[Page III.]

MANCHESTER EDUCATION COMMITTEE.

MEDICAL EXAMINATION.

1. PHYSICAL STATE.

Aspect and Expression.

State of Health.

Deformities or Paralysis.

Size and Shape of Head.

Eyesight and State of Eyes.

Hearing and State of Ears.

Mouth Palate Tonsils Teeth

Nose Obstruction to Breathing.

2. MENTAL STATE.

Recognition of Objects and Colour.

Memory.

Powers of Attention.

Temperament. Self Control. Moral Sense.

Ideas of Number.

Speech.

Habits.

3. EDUCATIONAL ATTAINMENTS.

Reading.

Calculation.

Writing.

Manual.

4. DIAGNOSIS.

Report, Suggestions for Treatment and Training.

APPENDIX V.

LIST OF HOMES AND INSTITUTIONS FOR THE
MENTALLY DEFECTIVE.

I. LARGE INSTITUTIONS (ASYLUMS).

Bath.—Magdalen Hospital School, Combe, Devon. By payment. 34 beds.

Birmingham.—Midland Counties Asylum for the Care and Training of Feeble-minded Children from Leicester, Salop, Staffordshire, Warwick and Worcestershire. By election and payment. 120 beds.

Colchester.—Eastern Counties Asylum for Idiots, Imbeciles and the Feeble-minded from Essex, Suffolk, Norfolk and Cambridge. By election or payment. 350 beds. Seaside Branch at Crossley House, Clacton-on-Sea.

Earlswood Asylum, Redhill, Surrey.—The National Training Home for the Feeble-minded. (Office: 36, King William St., London, E.C.) By election, if under 20 years, and by payment. 600 beds.

Exeter.—Western Counties Asylum, Idiot Asylum, Starcross, for cases from Dorset, Somerset, Devon or Cornwall. By payment. 272 beds.

Lancaster.—The Royal Albert Asylum: A Training Institution for the Feeble-minded of the Northern Counties (Lan-

cashire, Yorkshire, Cheshire, Westmorland, Cumberland, Durham and Northumberland). By election or payment. 715 beds. Also Brunton House Branch and the Storey Home for 40 feeble-minded girls.

Scotland, Larbert, Stirlingshire.—The Scottish National Institution for the Education of Imbecile Children. By election, payment or nomination. 320 beds.

Dundee.—Baldovan Asylum for Imbecile Children. By payment. 175 beds.

Ireland, County Dublin, Palmerston, Chapelizod. Stewart Institute for Imbecile Children. Cases from England received. Free or part payment from 6-16 years. Election. 100 beds.

2. HOMES AND COLONIES.

The weekly charges are given in most instances and those marked (*) are affiliated or belong to the National Association for the Feeble-minded.

Birmingham.—*Laundry and Homes of Industry, Arrowfield Top, Alvechurch. Permanent Care for mentally defective, innocent girls, preference given to cases from Boards of Guardians. 21 girls from 15 to 40.

*Laundry and Homes of Industry, Enniserry, Knowle. Permanent Care for

mentally defective girls who have had a first fall (no infants received). 27 girls from 15 years. 6/-.

Bristol and Bath.—*Chasefield Laundry Home, Fishponds. Permanent Care for feeble-minded girls of good character. 26 girls from 14 to 20. 7/-.

*Mary Carpenter Home, Causeway, Fishponds. (Permanent Care.) 20 girls over 14. 8/6.

*House of Help, 110 Walcot Street, Bath, for fallen girls. Girls. 8/-.

*Stoke Park, Stapleton, Bristol, for mentally and physically defective. 300 children and adults, male and female. 10/6.

Cheshire.—*Ashton House, Parkgate. Permanent Care for girls. 20 girls from 14 years. 5/- to 7/-.

Gloucestershire.—*St. Mary's Home of Industry, Painswick. Permanent Care. 29 girls from 6 to 40 years. 6/- to 7/6.

Herts.—Scott House, 1 The Triangle, Hitchin. Training. 24 girls from 13 to 16 years. 6/..

Kent.—*Princess Christian Farm Colony, Hildenborough, Tonbridge. 30 boys from 14 to 20 years. 10/-.

Leicester.—*Sunnyholme, 155 King Richard's Road. Permanent Care. 12 girls. 10/-.

Liverpool.—*Adcote, Pilch Lane, Knotty Ash. Permanent Care. 20 girls from 14. 5/- to 7/-.

London.—*Clapton, 44 Kenninghall Rd. (1) Training 20 girls under 16, 10/-, and (2) Permanent Care. 20 girls over 16, 8/6.

*Finchley, North Wolseley, Woodside Avenue. Permanent Care for girls and infants from Maternity Wards of Workhouses. 15 girls with 10 infants. 10/- and 5/- for infant.

*Hammersmith, Alexander House, 48 Glen-thorne Rd. Training and Permanent Care and After-care for girls. 19 girls from 14 to 20 years. 10/-.

*Kentish Town, N.W. Helping Hand Home, 59 Caversham Rd. Training Home. Girls. 10/-.

*Shepherd's Bush, W. "Isabella Head" Home, 170 Coningham Rd. Permanent Care for girls and women. 17 girls over 16 years. 10/-.

*Upshire Bury Home for boys, near Waltham Abbey, Essex. Training and After-care for boys. 21 boys from 14 to 20. 10/-.

Middlesex.—Yiewsley, St. Anne's Laundry Home. Protection and Care from moral weakness. 22 girls over 16.

Northumberland.—*Morpeth, Home of Industry, Bow Villa. Training for Workhouse cases from Northern Counties. 16 girls, 14 years. 6/-.

Newcastle, Monckton Hall, Jarrow-on-Tyne. After-care cases from Boards of Guardians. 40 boys over 14. 12/-.

Oxford.—*Cumnor Rise, Botley. Permanent Care. 20 girls over 14. 8/-.

Suffolk.—*Ipswich, Handford Home, Ranelagh Rd. Training and Permanent Care, and the *Walnut Tree Farm, Rendham (Holiday Home). 32 girls from 8 to 18 years. 6/-.

Sudbury, St. Joseph's Home. Girls over 16 years. 10/-.

York.—York Emmanuel for the children of ministers of any denomination. Boys and girls. Small payments if possible.

3. FOR PAUPER CASES.

Birmingham.—Monyhull Colony for Feeble-minded and Epileptic adults. About 100 cases.

City Asylum Ruberry Hill, Barnt Green (Special ward for idiots).

Cheshire.—Stockport, Stepping Hill. Home for 170 Imbeciles (not yet ready for use).

Hants.—County Asylum, Knowle, Fareham. (Special Ward for Idiots.)

Kent.—County Asylum, Chartham. (Special Ward for Idiots.)

Lancashire.—Winwick Hall, near Warrington, for boys.

London, Metropolitan Asylums Board.

(a) Imbecile Asylums.

Caterham, Surrey, for adults. 2,109 beds.

Darenth, Dartford, Kent, for adults *and Children*. 1,994 beds.

Leavesham, Leavesden, for adults. 2,130 beds.

Tooting Bec, for old and infirm imbeciles. 1,114 beds.

(b) Homes for Feeble-minded Children.

Bridge Industrial Home, Witham, Essex, for elder feeble-minded boys. 172 beds.

High Wood School, Brentwood, Essex, for elder feeble-minded girls. 96 beds.

Peckham, 26 Elm Grove, S.E., for boys. 15 beds.

Pentonville, Lloyd House, Lloyd Street, W., for girls. 28 beds.

Wandsworth, 81 Earlsfield Rd., for girls. 10 beds.

Wandsworth, Surrey House, 66 St. Ann's Hill, for boys. 20 beds.

Middlesex.—County Asylum, Wandsworth, S.W. (Imbeciles taken.)

Northampton.—County Asylum, Berry Wood near Northampton. (Special block for the education and treatment of idiot children.)

Staffordshire.—County Asylum, Burntwood.

Sussex.—East County Asylum, Hellingly. (Separate detached block for Children.)

Yorkshire.—Wakefield, West Riding Asylum (Home for idiot boys).

Glasgow.—Woodilee Asylum, Lenzie. Annexe for Imbecile Children. 46 beds. Permanent Care.

4. BOARDING SCHOOLS FOR MENTALLY DEFECTIVE CHILDREN (CERTIFIED BY THE BOARD OF EDUCATION).

Cheshire (and *Lancashire*).—Sandlebridge & Great Warford Schools, near Alderley Edge, with After-care. 248 beds. (p. 294.)

London.—Hackney, Homerton, Residential for Children Mentally Defective and Deaf. 45 boys.

Brixton, Acre Lane, Special Council Residential Home. 30 boys.

Middlesex.—Hillingdon East, Pield Heath House (Roman Catholic). 62 boys and girls.

The Littleton Home, Uxbridge, accommodation for 14 boys under 12.

Staffordshire.—Sandwell Hall, West Bromwich, accommodation for 200 boys and girls.

Sussex.—*Hastings and St. Leonards Special School for the Defective Blind, Kenilworth Road, St. Leonards. Girls under 16, boys under 10. 48 and 49.

Scotland.—Glasgow, nr. Kirkintullock, Home for feeble-minded girls. 33 cases.

Glasgow Association for the care of the Feeble-minded.

ADDITIONAL INFORMATION.

Queen Adelaide's Fund is a small fund partly devoted to the relief of imbeciles discharged from the Asylums of the Metropolitan Asylums Board or of Middlesex. See Annual Charities Register and Digest.

Further particulars regarding these institutions and homes can be found in :—

The Annual Charities Register and Digest.
Longmans & Co.

Burdett's Hospitals and Charities. London :
The Scientific Press Ltd.

The Medical Directory. London : Churchill.

The Annual Report of the National Association for the Feeble-minded.

The List of Certified Schools for Blind, Deaf, Defective and Epileptic Children in England and Wales. Wyman and Sons.

Shuttleworth and Potts. Mentally Deficient Children. Lewis, London.

The following are the addresses of Societies dealing with the feeble-minded :—

1. The National Association for the Feeble-minded, Denison House, 296 Vauxhall Bridge Road, S.W.
2. Glasgow Association for the Care of the Feeble-minded, Hon. Sec., A. H. Charteris, 19 St. Vincent Place, Glasgow.
3. Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded, Hon. Sec., Miss Dendy, 13 Clarence Rd., Withington, Manchester.
4. National Institution for Persons requiring Care and Control, 14 Howick Place, Westminster, S.W.
5. The Charity Organisation Society, Denison House, Vauxhall Bridge Road, S.W.
6. The Metropolitan Asylums Board, Victoria Embankment, E.C.

Glossary

GLOSSARY.

Amentia. A term synonymous with Mental Deficiency.

Aphasia. Loss or defect of power of speech or writing. This may be of two kinds (1) Sensory, when there is inability to remember or to comprehend words, and (2) Motor, when there is inability to articulate words.

Asexualization. An operation undertaken with the object of rendering a person sterile or unable to have children.

Ateliosis. A condition resembling continued youth.

Backwardness. A condition in which mental development is retarded through disease, sense-deprivation or some other adverse condition; if suitable treatment can be adopted the child improves and becomes mentally normal.

Biochemistry. The chemistry of living tissue.

Biometry. A term applied to the study of Heredity by statistical methods.

Bulimia. Insatiable desire for food.

Cerebral Diplegia. One of the special types of mental deficiency, where there is accompanying physical deformity. See Chapter V.

Cerebrum and Cerebellum. The upper larger portion of the brain and the under smaller portion respectively.

The cerebrum is the most important part, and the cerebellum has to do with balancing and co-ordination. The cortex cerebri is the external layer of the cerebrum.

Chromatin. The granular deeply staining part of a cell-nucleus. Chromosomes are the rod-shaped bodies formed by the chromatin when cell-division is about to take place.

Cirrhosis. Liver disease often due to prolonged taking of alcohol in excess.

Cortex. See Cerebrum.

Craniectomy. The operation of partial excision of the bones of the skull to allow of their opening out if necessary.

Cretinism. A condition identical with myxœdema, due to absence of the thyroid gland in the neck. See Chapter V.

Cyrtometer. A leaden instrument for taking contours.

Cytology. The branch of science treating of cells.

Deaf-mutism. A condition of being both deaf and dumb. It may be congenital in origin but is more commonly due to deafness from disease in early infancy or early childhood.

Diplegia. Paralysis on both sides of the body.

Diplococcus Intracellularis. A minute germ that causes meningitis.

Encephalitis. Inflammation of the brain substance.

Enuresis. Incontinence of urine, which is most commonly nocturnal though it may be diurnal as well.

Epicanthus. A projection of a fold of skin over the inner canthus of the eye.

Epilepsy. A disease characterised by convulsions which are accompanied with loss of consciousness. There are two forms (1) Grand Mal or Major Epilepsy, in which the fits are marked and of considerable duration and (2) Petit Mal or Minor Epilepsy, in which the fits are slight and sometimes barely noticeable. In true epilepsy the brain does not show any actual signs of disease, but in other forms there may be meningitis or scar-tissue in the brain, and then the fits are generally worse and do not react to treatment as readily as do true epileptic fits. Epileptic fits may be a cause of incontinence of urine or fæces.

Eugenics. The study of agencies under social control that may improve or impair the racial qualities of future generations either physically or mentally.

Feeble-mindedness. The highest grade of Mental Deficiency.

Fertilization. The impregnation of the ovum with the spermatozoon.

Follicular Tonsillitis. An inflammation of the tonsils, which may spread from one child to another and is not diphtheritic in nature.

Gastric. Relating to the stomach.

Genetous. A term applied to a condition entailing deficient mental manifestation, the essential point being that the condition is complete before birth.

Gestation. Pregnancy.

Hæmoptysis. Hæmorrhage or bleeding from the lungs, a symptom of consumption.

Hemiplegia. Paralysis or weakness of one side of the body; often due to an effusion of blood on to the brain on the opposite side to that which is paralysed.

Hydrocephalus. "Water on the brain." Fluid collects inside the skull and compresses the brain. The condition may be congenital or the result of meningitis. See Chapter V.

Hypotonia. Laxity or want of tone as applied to muscles or ligaments.

Idiocy. The lowest grade of Mental Deficiency.

Idiot Savants. Mentally deficient persons who are exceptionally gifted in one especial faculty.

Imbecility. The medium grade of Mental Deficiency.

Immunity. The state of being immune or exempt from a disease. Immunity may be (1) inherited and innate or (2) acquired as the result of an attack of the disease. (An attack of Scarlet Fever confers immunity to future attacks.)

Incubation Period. The period between infection and the first appearance of symptoms.

Insanity. Disorder of the mental faculties developing at some period of life.

Labials. Consonants pronounced by the lips.

Lalling. Defective articulation of consonants.

Larynx and Laryngeal. The larynx is the upper part of the expanded part of the windpipe and contains the vocal cords.

Linguals. Consonants pronounced by the aid of the tongue.

Lobule. The fleshy dependent part of the ear.

Lunatic. One who has become insane.

Malaise. Indisposition.

Melancholia. A form of insanity, characterised by extreme mental depression.

Mendelism. Mendel's theory of heredity, embracing the idea of unit characters and of dominance and latency of these.

Meningitis. Inflammation of the membrane surrounding the brain. It may follow pneumonia, tuberculosis, ear disease, syphilis or infection with the meningococcus.

Mental Deficiency. A term synonymous with amentia, signifying imperfect development of the mental faculties and due to an incomplete and irregular development of the nerve cells in the brain.

Microcephaly. Mental deficiency accompanied by a very small brain and head. See Chapter V.

Miliary Tuberculosis. Tuberculosis generalised and spreading all over the body by the blood stream.

Modifications. Variations acquired during the lifetime of the individual.

Mongolism. A special type of Mental Deficiency, so-called because cases belonging to it resemble the Mongolian race in features.

Morphological. Having to do with the structure and form of organisms.

Mutation. A process by which new parts arise in an individual by a sudden variation. See page 183.

Myxædema. See Cretinism.

Natal. Having to do with birth.

Natural Criminals. (Moral Defectives.) Persons, who, though usually of good mental powers, have some innate defect that makes them liable to various forms of wrongdoing. Training cannot eradicate this defect.

Natural Selection. One of the great theories of heredity. See page 182.

Nerve Cell, Neuroglia, Neurone. The brain is made up of nerve cells embedded in and supported by the neuroglia. The nerve cells are the essential part of the brain and send out processes by which they communicate with the various parts of the brain and body. The main branch of each nerve cell forms a neurone. Nerve cells may be

motor, causing movement, or sensory, *i.e.*, connected with sensation and mental processes.

Neuropathic. Relating to or affected with nervous disease.

Neuropathic Diathesis. Constitutional predisposition to nervous disease.

Neuropathic Inheritance. Inherited predisposition to nervous disease.

Neurosis. A nervous disease in which, as in Hysteria, there is no actual visible alteration in the nervous system.

Nucleus. The spherical body within a cell; it takes an essential part in reproduction.

Nurture. Nourishment and care which often enable helpless and weakly individuals to survive.

Nystagmus. Continuous movement of the eyeball from side to side.

Occipital. Pertaining to the back of the head.

Ovum. The female reproductive cell.

Palpebral. Relating to the eyelid.

Parietal. Pertaining to the side of the head.

Parotid Gland. One of the glands supplying saliva and situated just behind the angle of the lower jaw. This gland is inflamed and swollen in Mumps.

Parrot-Speech. The senseless repetition of sentences or words heard.

Pathology. The study of diseased organs.

Pediculi. Lice on the head; they lay eggs as nits on the hair and these hatch out at intervals. Oil of Sassafras is the best remedy for the condition.

Placenta. The fleshy mass, which forms the after-birth and acts as a medium between mother and child whilst the child is in utero.

Plasm, Protoplasm. There are two plasms, the germinal or reproductive, and the somatic or tissue building. See page 179.

Phthisis. A wasting away. Phthisis is now used to designate tuberculosis of the lungs.

Pica. The habit of eating dirty and unnatural things.

Pinna. The external ear developed from six parts, the helix, crus helicis, anti-helix, tragus, anti-tragus, and lobule. See Plate IV.

Pituitary Body. A small part of the brain under the cerebrum.

Progeria. A condition resembling premature old age.

Prognathism. Projection of the jaw.

Prognosis. Prediction of progress or termination.

Protoplasm. The viscid matter composing a living cell.

Pseudo-hypertrophic Muscular Paralysis. A progressive disease of the muscles leading to complete paralysis and death. There is

a deceptive increase in size of the muscles at first and the calves of the leg show this the most.

Pulmonary. Referring to the lungs.

Quarantine. The period during which the child, who has been exposed to infection, may develop the disease and therefore should be kept from contact with other children, who have not been exposed to infection.

Regression. The tendency to return towards mediocrity. Filial regression is the *general* tendency to return to mediocrity shown by the children of gifted parents.

Reversion. A condition in which individuals exhibit ancestral traits, which their immediate parents did not possess.

Rickets. A disease of infancy and early childhood, caused by bad food and bad surroundings. It leads to anæmia and bony deformities and often causes backwardness.

Scabies. A skin disease due to the itch mite, which most commonly lodges in the skin between the knuckles. Sulphur ointment is the best remedy.

Sclerosis. Thickening and contraction as a result of scar tissue.

Segregation. The separation of any class of individuals from the remainder of the community. Also used to denote the process by which characters are sifted or bred out.

Sense-deprivation. Deafness or blindness or similar conditions caused by the loss of a sense, usually caused by disease.

Spasticity. A weakness or paralysis of the limbs characterised by stiffness and jerkiness and contractures.

Spermatozoon. The male reproductive cell.

Sports. See mutation.

Stigmata of Degeneration. Physical or mental defects exhibited by persons of the neuro-pathic type.

Strabismus. Squint.

Synostosis. A joining of bones.

Thyroid Gland. A gland that is situated at the junction of the neck with the front of the chest: it is absent in Cretinism.

Toxic. Poisonous.

Trachea. The windpipe.

Tragus. The projecting part of the external ear in front of the opening.

Tuberculosis. A disease otherwise known as consumption, which is due to a germ and may affect any part of the body. The germ may spread because it is coughed up and, after the sputum has dried, blown about, or because it is present in meat or milk or other foods.

Variations. A term, used in dealing with heredity, to denote the way in which offspring differ from their parents.

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